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The Steel Trade Disturbed

More Irregularity in Prices

New Discounts on Merchant Pipe—Rail Inquiry for Next Year

Uncertainty about the future of the United States Steel Corporation has commanded the attention of the steel trade in the past week and buying and selling have suffered. The air has been so charged with disturbing rumors, accompanied by rapid declines in the corporation's securities, that it may take a week or longer to give any clear view of the trade situation. Some help has been given by the statement of the corporation's directors, referred to elsewhere.

Two things need to be emphasized at a time when real conditions are apt to be obscured. One is that consumption, as shown by the operation of blast furnaces and steel works and the close connections that are now regularly made between rolling mills and consumers, is but little below the maximum for this year. The other is that at the low prices reached on finished materials some buyers are showing more confidence in the market.

The statement of the Steel Corporation, given out Tuesday, refers to 4,500,000 tons on its books including 929,000 tons of inter-company business. The first of these figures is evidently not exact, but deducting from it the second, leaves 3,571,000 tons of orders, a decline of 125,000 tons from the amount reported for September 1, which was 3,695,985 tons.

All market reports indicate that finished steel prices have been under more strain and in some cases are $1 to $2 a ton lower. But the lowest prices named are not general and a good many buyers find that they cannot place business at these figures. This unevenness has caused much confusion.

The appearance of a 30,000-ton Bessemer rail inquiry from the Norfolk & Western Railroad for 1912 is encouraging in this between-season period for the rail mills. The business may be placed soon and it is possible that this and other lines will permit the rolling of some of their 1912 rails this year. There is considerable foreign inquiry for rails, and the Chilian State Railways have placed 10,000 tons in this country.

A new card of discounts on merchant pipe, to be issued by the National Tube Company, October 2, will show a reduction of $2 a ton on black and a greater reduction on galvanized pipe. Boiler tubes, on which there has been sharp competition for some time, are reduced $3 to $5 a ton on sizes above 2½ in. A line-pipe inquiry, on which foreign mills will be close competitors, comes from the Canadian Western Gas, Light, Heat & Power Company for 40,000 tons of 4½ to 16½ in. pipe.

A more aggressive attitude on structural shapes has been taken by some mills and 1.27½c. has been reached on large business in the Pittsburgh district, while Chicago reports business taken at the equivalent of 1.25c., Pittsburgh. At Cleveland bids have been

taken on 5000 tons for crossing work for the Pennsylvania Railroad. The Burlington office building at Chicago, 6500 tons, was taken by the American Bridge Company, and at Pittsburgh the Bethlehem Steel Company was awarded 2600 tons for the First National Bank extension.

What low prices may do in bringing business to a head is illustrated in the inquiry from the Central Railroad of New Jersey for 10,000 tons of steel for two bridges which will not be erected for a year or more.

Plate mills are drifting into quieter conditions. Orders from car and locomotive works are dwindling, and the latter in particular are facing a lean winter. For one of the American Hawaiian Steamship Company's proposed steamers an inquiry has come up at Philadelphia for 5400 tons of plates and shapes.

Low prices were named on the 8900 tons of 40-in. cast-iron pipe which will be bought for Brooklyn, N. Y., and pipe foundries report fewer inquiries from private buyers. Muskegon, Mich., has placed an order for 5000 tons.

In the Pittsburgh district prices on open-hearth billets and sheet bars have declined further and as low as $19 and $19.50 respectively are reported, some of the smaller open-hearth mills showing more eagerness for orders.

Pig-iron markets are even quieter, buyers having evidently been driven off by recent weakness in this year's prices and the failure of furnaces to establish advances for next year.

Several ferromanganese contracts are pending in the Central West, the recent advances having hurried buyers into the market for their entire requirements for 1912.

The Steel Corporation and Disintegration

The securities market has been shaken in the past week by reports which, while not new, were repeated with more positiveness than before, that steps were about to be taken to bring about a dissolution of the United States Steel Corporation. It was said that the officers of the corporation, following the example of the International Harvester Company, were initiating plans for reorganization which would be submitted for the approval of the Government. It was also said that the Department of Justice had made preparations to proceed in the courts to compel the dissolution of the Steel Corporation. This last report was denied by the Attorney-General. He also denied that he had said, as quoted by one newspaper, that "the United States Steel Corporation is plainly a combination in violation of the law."

The officers of the Steel Corporation have maintained a strict silence. One might hazard the surmise that they had no clearer idea than the Department of Justice as to the steps to be taken, if any, "to square themselves with the decision of the Supreme Court," to use the words Attorney-General Wickersham applied generally to large business interests. Indeed, until recently it had been considered that the Government, after five years of investigation more thoroughgoing than it has made of any other consolidation, had not found ground on which to bring dissolution proceedings against the Steel Corporation. Its great size, the wide use of many of its products which carry protective duties, the identification with it of banking interests which in popular thinking incarnate the "money power," the leading position of the steel trade—all were considered reasons in particular for attacking the Steel Corporation. Well known as were all these conditions, it is somewhat surprising that the situation should suddenly have become so portentous.

Another surprising feature of the week is the glibness with which in some quarters disintegration has been discussed. The dismemberment of a consolidation that fairly staggers the mind with the gigantic scale of its operations has been talked of as though it were some routine clerical proceeding. The task of bringing together the great companies now known as subsidiaries of the Steel Corporation was monumental. But it was simplicity itself compared with an attempt to resolve the consolidation and its subsidiaries, with their ten years of accretions and structural changes, into the original units. Corporeal resurrection, by the coming together of elements that had gone back to earth, would be little less a marvel. Not only have companies utterly disappeared, but in more than a score of cases entire plants have been blotted from the map. New combinations have been made, old lines obliterated, millions of dollars' worth of property created, traceable to none of the original constituents, and in many cases new and old have been intermeshed in a way that makes separation impossible.

There may be features of the Steel Corporation's organization and operations that Government oversight would change. If there were Federal incorporation and some such regulation of the largest industrial companies as the Hepburn law provides for railroads, it is not improbable that ownership of the two Minnesota roads by the Steel Corporation and the rate charged by these roads would be called in question. So far as the rate is concerned, that is now and has been subject to revision by the Interstate Commerce Commission. The extent of the corporation's control of the Lake Superior ore supply and its large ownership of Southern ore might also be regarded as matters for adjustment, in view of their bearing on future competition in the industry. If the Tennessee Company purchase and the Hill ore deal should be considered as tending toward undue control of ore supply, such a decision, if made on Government authority, would put the country well on the way toward certainty on a question on which the Government just now is unable or unwilling to give any clear light. It may be claimed, also, that the existence of a powerful interest like the Steel Corporation has alone made possible the policy of co-operation and price maintenance in the steel industry. The answer is found in the open market of to-day and that of 1909, and the power in the hands of the Department of Justice to put a stop to this mode of "co-operation" whenever it finds it to exist in undue restraint of trade.

Attorney-General Wickersham, in his latest deliverance, lays down "undue restraint of trade" and "attempting monopoly" as the Supreme Court tests which the Department of Justice is now applying. Since the Steel Corporation's officers will deny that either of these things exists or is aimed at by their organization, how can they be expected to accept Mr. Wickersham's general invitation to "work out a plan of separation to avoid illegal conditions? It would seem that in justice to their bondholders and stockholders they must leave the whole question to the decision of the courts; not in a spirit of hostility or opposition to the Government, but of seeking light from nothing less than the highest judicial authority in the land on one of the

most momentous issues that has arisen in modern business.

The events of the week have given telling emphasis to the need of some source of Federal discretion for corporate business. It is inconceivable that large corporations are to be done away with. But there must be some security to those charged with their management; it must be possible for them to know whether their policy or their proposals are within the law. If "each case stands on its own footing and depends upon its own particular facts," as the Attorney-General has said, it is plain that the decision in the case of one corporation cannot become a rule for others, unless it be applied to them by competent authority.

The day of Government regulation of large business is certainly here; but just now a monopoly of such regulation, apart from that of railroads, is in the hands of the Department of Justice, which can be heard from only by indictment or by dissolution suits, or perchance by its response to a confession by a corporation's officers that their action has been contrary to law. Manufacturers may protest against the Government "running" their business, but Federal regulation of the form if not of the scale of business is a fact. What is of the greatest moment now is that the regulation be constructive and not destructive; that the benefits of consolidation shall be preserved and their evils eliminated; and that manufacturers shall be able to know before the fact whether a plan of procedure is within the law. Whether the new legislation to that end provide for a bureau, a commission or an industrial court is not so material as that provision be made for lifting the siege upon business. Present conditions, which are close to an *impasse*, may prove less calamitous than they now appear if they increase the conviction that some such way out must be found, and found soon.

Since the above was prepared a statement has been issued by J. Pierpont Morgan and Elbert H. Gary as a committee of the Steel Corporation's board of directors, giving their stockholders the assurance many of them have needed, that no disintegration of the corporation is contemplated, either voluntary or at the demand of the Government. It said further that the corporation had not been operated to restrain trade or to obtain a monopoly; that it had observed the law and recognized the just rights of its competitors and the consumers of its products, and that its counsel had advised that it was not in violation of the Sherman act as interpreted in the recent decision of the Supreme Court. The statement will quiet much of the apprehension excited by recent rumors. The Government might clear up the situation further by a statement of like definiteness from its Department of Justice; but that, it is evident, would be inconsistent with the Attorney-General's policy of forcing "voluntary" action by giving all large consolidations to understand that they are in peril of civil or criminal proceedings.

Basing Prices on a Normal Business

The practice is growing in certain branches of the machinery trade of basing industrial values on a normal business. The idea is to establish, in a thoroughly organized way, a system by which a given profit shall be earned covering a series of years, in all the ups and downs of business. Manufacturers differ, of course, in the definition of the word normal as applied to trade conditions and for the purpose of the system under discussion the expression is taken as meaning average production in its ratio to capacity.

In an industry the product of which is a staple metal article the manufacturers have got together to the extent of fixing a standard 75 per cent. average production, upon which all prices are based. In a period of 10 years it was found that this figure represented the experience of the industry as a whole. Therefore, it was decided, if a given profit is to be earned, year in and year out, prices must always be reckoned on that basis. If an investment of $100,000 is to earn $10,000 a year, or $100,000 in 10 years, the profits of good times must be high enough to cover the losses or failures to earn the full shares of other years. The general proposition should be true of all systems, of course. But in the case in question the manufacturers decided that the way surely to bring about the result was always to reckon prices on an average production. In rush times, with every possible producing facility working at the top limit, prices are made as if only 75 per cent. capacity was operating, which naturally results in a large margin of profit. To earn a given amount on an investment at three-fourths capacity requires higher prices than would be the case on a full capacity basis. Therefore, if 75 per cent is taken when as a matter of fact works are running at 100 per cent., actual profits are proportionately greater.

This rule does not prevail in most machine tool establishments. Ordinarily, manufacturers are content to accept the high profits of good times and put them against the failures of lean years, paying too little attention to the co-relation of the varying years in its effect upon the earnings of their investments. In this branch of industry also 75 per cent. is not far from the average production, according to those who have investigated the subject. In determining prices the variation in capacity need not be considered, except in its ratio to production during any week or month or year.

The belief is expressed that this system has a most healthful influence upon an industry. It acts against too rapid an expansion in prosperous times, and a wise conservation of cash resources. Money with which to pile up stocks during dull years, when cost of production is lowest, earns more than abnormal enlargements, with their large interest charges. Expansion must come for every growing business, but it is better to prepare for a good business when times are dull than to wait for the rush before beginning construction and the purchase of equipment.

The whole point of the system of placing prices on the basis of normal production is that profits must be shown for the past and the future as well as for the present. It is claimed that business, as a consequence, is conducted more intelligently.

Misrepresenting Machinery Deliveries

The question of keeping territorial selling agreements with dealers is often a vexatious one with machinery and supply manufacturers who frequently but unwittingly violate contracts with their representatives through the cupidity of other dealers who make misrepresentations as to where the material is to be delivered. Export dealers of a certain type are responsible for differences which have recently come up between manufacturers in some parts of the country.

These export firms have developed the practice

Mechanical and Civil Engineers,
PITTSBURGH, PA.

of seeking business in this country and supplying the demand with material ostensibly bought for shipment abroad. In this way they often have a distinct advantage over the dealer supplying the domestic trade, as the manufacturer, taking into consideration the extra freight costs attached to selling machinery abroad, is likely to shade his profits somewhat in order to compete for foreign business. Several instances have come up of late where exporters have purchased machinery at an advantageous price on the representation that it was to be shipped to South America and later sold the equipment in this country for a price so low that the domestic dealers were unable to compete.

In the machinery trade this trick is difficult to repeat, as the field is limited and the average manufacturer can be duped only once, but in the supply business the wily exporter can distribute his operations among a larger number of firms. With this in mind, machinery and supply dealers would do well to investigate the seller when they find their field invaded before they conclude that the manufacturer has willfully broken his agreement.

Turbo-Electric Hoisting Engines in Lake Mines

The recent report of Prof. J. R. Finlay covering the value and cost of operating the mines of the upper peninsula of Michigan, both iron and copper, made public figures much less favorable than was generally anticipated. With reference to the copper mines, it was brought out that the cost of operating failed to admit of even a normal profit on the basis of the present selling price of copper and that the possibility of continued profitable operation depended upon new economies in mechanical equipment and a market permitting the mining of increased tonnages. The mine workings in the Keeweenaw Peninsula have now been developed at great depth, and the cost of hoisting has become an important item of expense.

It is interesting, therefore, in this connection to note that not only in the copper country, where the case is most advanced, but also among the iron mines of the Marquette Range, steam turbines, driving electrically operated hoists, have entered the field to displace the present types of steam hoisting engines. For many years the remarkable engines of the copper country, with their complicated and highly finished designs, great size and immense hoisting sheaves, have been unique. Although the first cost of these plants was undoubtedly enormous, operating economy is understood to have been compensatory. The advent of both the low and high pressure steam turbine, direct connected to electric generating units, is none the less an interesting transition. It enters the field hand in hand with the generation of electricity for similar purposes through the development of water power plants.

During the past summer account was kept at a large manufacturing plant, employing about 6,000 men, of the time saved by the substitution of drinking fountains for coolers and cups. Exclusive of noon time, each man averaged about four drinks for the working hours of the day. Formerly he would go to the cooler, fill the cup, raise it to his lips and take a look round the shop, as almost everyone does under like circumstances. This process consumed at least a minute longer than the present method of going to the fountain, taking a drink and going directly back to the tool. On that basis the saving effected in a day is equal to 400 hours for the force as a whole, or enough to run a fair-sized shop. This saving, of course, looks larger in figures than it is in fact, for the reason that there are pauses in the operations which can be taken advantage of by the men. Nevertheless, an economy of time is effected; and this, added to the elimination of expense for filling the coolers and stocking them with ice, makes the innovation well worth while.

The Extended Use of Oil for Fuel.—Facts occasionally coming to light show the increasingly wide geographical range over which oil is used as fuel in a large way. An open-hearth steel furnace, for instance, requires not only a large quantity of oil per day but an assurance of continuous supply, as a shutdown of such a furnace means a very large expense. The statement is made that furnaces in Boston, Mass.; Portland, Me.; Londonderry, Nova Scotia; Seattle, Wash.; San Francisco, Cal.; St. Louis, Mo., and Washington, D. C., in addition to 75 open-hearth furnaces scattered through the better known steel making territory, have been equipped by Tate, Jones & Company, Inc., Pittsburgh, with their fuel oil burners, reversing valve stands, etc., which indicates the present very extended use of this abundant fuel.

The Treadwell-Stoever Consolidation.—E. R. Euston, vice-president of the Stoever Foundry & Mfg. Company, who has been in charge of its New York office for the past ten years, will remove to the new plant at Easton, Pa., October 2. As that company has been absorbed by the Treadwell Engineering Company, it will discontinue its New York office and its plant at Myerstown, Pa., and in the future will maintain general sales offices at Easton, Pa., under the name of the Treadwell Engineering Company, where the line of pipe-threading, cutting and banding machines will be manufactured. It is the expectation to add kindred lines of machine tools in the very near future, due announcement of which will be made.

The Southern Stamping & Mfg. Company, Nashville, Tenn., which manufactures specialties on contract, has this year been making for the Standard Tag Company, Augusta, Ga., a metal tag for marking cotton bales. This is the first year that the article has been put on the market extensively. Each tag has the name of the ginner and the consecutive number embossed in the tin. The metal tag is a decided improvement over the paper tags generally used, being practically indestructible and it being almost impossible to remove it from the bale without taking off the band to which it is attached. The company is manufacturing quite a number of specialties for other parties in various sections of the country. It has no connection with the sale of the articles it manufactures. Business in this line has been found to be very good.

The George M. Newhall Engineering Company, Philadelphia, Pa., with branch office at 50 Church street, New York City, reports the following recent sales of equipment: Three 120-ton wrecking cranes and two locomotive coaling cranes to the Baltimore & Ohio Railroad; a 120-ton wrecking crane to the New York Central; two 30-ton transfer cranes and a lifting magnet to the Delaware & Hudson; an electric wrecking crane to the Boston Elevated; a 12-ton magnet locomotive crane to the Norfolk & Western, and a 20-ton locomotive crane to the Pennsylvania Salt Mfg. Company. This equipment is built by the Industrial Works, for which company the Newhall Engineering Company is Eastern representative. It also reports the sale of one especially designed 100,000-lb. Riehle testing machine to the Pennsylvania Railroad for its test department at Altoona.

Canada has refused to accept reciprocity with the United States. At the Canadian general election, held September 21, the opposition to reciprocity secured a large majority in the House of Commons. The Laurier government had a majority of 43, which has been turned into an opposition majority of about the same size. R. L. Borden will be the new prime minister and Sir Wilfrid Laurier will be the leader of the minority in the next House of Commons.

Sixth Testing Society Congress

Committees for the Meeting in New York in 1912

Bulletin No. 1 has been issued by the Organizing Committee of the American Society for Testing Materials for the Sixth Congress of the International Association for Testing Materials to be held in the Engineering Societies Bldg., New York City, in September, 1912. Mention has already been made of the election of H. F. J. Porter, 1 Madison avenue, New York, as secretary of the organizing committee. Several special committees have been appointed to be added to the Organizing Committee and an Executive Committee has been constituted as follows, the members consisting of the officers of the Organizing Committee and the chairmen of the special committees: Henry M. Howe, chairman; Robert W. Lesley, vice-chairman; H. F. J. Porter, secretary; Edgar Marburg, F. E. Schmitt, F. H. Clark, Richard L. Humphrey, Rudolph Hering, Joseph A. Holmes, Robert W. Hunt. The membership of the special committees is as follows:

Finance.—Edgar Marburg, chairman, University of Pennsylvania, Philadelphia; W. A. Bostwick, E. M. Hagar, John McLeod, R. S. Perry, A. A. Stevenson.

Reception.—Robert W. Hunt, chairman, The Rookery, Chicago; John Birkinbine, Mansfield Merriman, C. C. Schneider.

Papers.—F. E. Schmitt, chairman, Engineering News, 220 Broadway, New York; William K. Hatt, George F. Swain, Arthur N. Talbot, F. E. Turneaure.

Transportation.—F. H. Clark, chairman, B. & O. Railroad, Baltimore, Md.; E. B. Ashby, Charles S. Churchill, Theodore N. Ely, J. P. Snow.

Information.—Richard L. Humphrey, chairman, 805 Harrison street, Philadelphia,; Jesse J. Shuman, Gustav W. Thompson, John C. Trautwine, Jr., George S. Webster.

Local Committees.—New York—Rudolph Hering, chairman, 170 Broadway, New York; George F. Kunz, Richard Moldenke, W. O. Wiley. Washington—Joseph A. Holmes, chairman, Bureau of Mines, Washington, D. C.; William H. Bixby, Allerton S. Cushman, Logan Waller Page, S. W. Stratton, Charles E. Munroe, Harvey W. Wiley.

The Committee on Excursions and the Ladies' Committee are yet to be appointed.

At the coming congress, as at previous ones, the sections will be separately dealt with in three sets of parallel sections. Section A deals with metals; Section B, with stone, cement and artificial stone, and Section C, with miscellaneous materials.

The sectional sessions of the congress will give first consideration to the subjects of reports and discussion formulated by the council. There are two classes of subjects: 1. Principal questions. These number fifteen and each has been assigned to an authority on the subject matter of the question as reporter. The reporter will present a summary of present knowledge concerning the question. 2. Technical problems, of which there are about forty. Most of these have been assigned to committees international in composition and scope. The above two classes of subjects are open for the submission of papers independent of the reporters' views or the committee reports. Papers are not expected to exceed 2500 to 3000 words. All papers prepared in the United States should be sent to F. E. Schmitt, chairman of the Committee on Papers, 220 Broadway, New York, by January 1, 1912, in order that they may reach the general secretary in Vienna by February 1, 1912.

In the article in *The Iron Age* of September 7, page 526, on "The Stock Process for Steel Castings," the table showing tensile strength of Stock converter steel, in which the figures ranged from 27.4 to 30 should have indicated in the heading that tons of 2240 lb. were represented rather than "1000 lb. per sq. in. original area."

The National Limestone Company, Harrisburg, Pa., expects to have in operation October 1 its Edison roll crushing plant near Martinsburg, W. Va. This plant will have a capacity of 5000 tons daily of 5-in. high carbonate and extremely low silica fluxing limestone. Walter P. Maguire is general sales agent of the company.

The Steel Corporation Stands on Its Record

The United States Steel Corporation is determined to stand on its record, and will resist any effort of the Government to force it to dissolve. This was made known just before midnight on Tuesday in a statement signed by J. Pierpont Morgan and Judge Elbert H. Gary, acting as a committee of the board of directors. The statement is as follows:

"Pursuant to the unanimous vote of the board of directors of the United States Steel Corporation at a meeting held this afternoon, at which there were present J. Pierpont Morgan, H. C. Frick, Norman B. Ream, P. A. B. Widener, Robert Winsor, Elbert H. Gary, George W. Perkins, John F. Dryden, Samuel Mather, Daniel G. Reid, Henry Walter, James A. Farrell and James H. Reed, the following statement is published:

"No negotiations whatever have taken place between the Steel Corporation and the Department of Justice looking to the dissolution or disintegration of the corporation. The corporation was organized for business reasons, and purchased its various plants to promote such business and not to restrain trade or obtain a monopoly. In all its operations the company has scrupulously observed the law and recognized the just rights of its competitors and the consumers of its products. So far as its directors are aware, no complaint has ever been made against it by either of these interests. The directors are advised by its counsel that its existence is not in violation of the Sherman act as interpreted in the recent decisions of the Supreme Court.

"In view of this record and this advice, the directors feel that their duty to their stockholders, their employees and the public requires that they should set at rest all rumors to the effect that they are contemplating the dissolution or disintegration of the corporation, either voluntarily or at the demand of the Government. We believe that the organization is legal, that its management is proper, that its properties are of immense intrinsic value and that the corporation is of benefit to the public interest."

A merger of the Saurer Motor Truck Company with a plant at Plainfield, N. J., and the Mack Bros. Motor Car Company, of Allentown, Pa., has been effected. The new corporation will be known as the International Motor Truck Company. C. P. Coleman, president of the Saurer Company, will be president of the consolidation, and J. M. Mack will be vice-president. The capital of the Saurer Motor Truck Company is $1,600,000, and of the Mack Company $1,000,000. The Saurer truck is of the heavier type and will continue to be manufactured at the Plainfield plant, while the Mack truck, which is designed for lighter service, will be built at the Allentown plant.

The Samuel L. Moore & Sons Corporation, Crescent Iron Works, Front and Franklin streets, Elizabeth, N. J., has recently completed improvements at its plant and has others in contemplation with a view to increasing its facilities. The company has developed its engine known as the Crescent fuel oil engine, for pumping purposes, by directly connecting it with a pump, and has been doing considerable in this line with railroads for their water stations. A good amount of such business is in hand and more is in prospect. The company's general business is fairly good, its sales this year running considerably over those of previous years.

The Cortland Carriage Goods Company, Cortland, N. Y., is building an addition to its forging department comprising a little over 11,000 sq. ft. of floor space. It has also just put in opeartion a new power house, with a Smith gas producer and a Buckeye engine, which will furnish the additional power desired. The line of carriage hardware made is being extended by the manufacturer of body hangers, body loops and other heavy forgings required for the carriage trade.

There are no definite plans for the resumption of operations at the plant of the New York State Steel Company at Buffalo. The blast furnace went out early in July and the steel works was shut down shortly after. It is understood that some consideration has been given to the building of finishing mills.

The Iron and Metal Markets

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Sept. 27, 1911.	Sept. 20, 1911.	Aug. 30, 1911.	Sept. 28, 1910.
PIG IRON, Per Gross Ton:				
Foundry No. 2 standard, Philadelphia	$15.00	$15.00	$15.00	$16.00
Foundry No. 2, Valley furnace.	*13.25*	13.50	13.50	13.75
Foundry No. 2 Southern, Cincinnati	13.25	13.25	13.50	14.25
Foundry No. 2, Birmingham, Ala.	10.00	10.00	10.25	11.00
Foundry No. 2, at furnace, Chicago*	14.50	14.50	14.50	16.25
Basic, delivered, eastern Pa....	*14.50*	14.75	14.75	15.00
Basic, Valley furnace.....	12.60	12.60	13.00	13.50
Bessemer, Pittsburgh	15.90	15.90	15.90	15.90
Gray forge, Pittsburgh.....	*13.65*	13.90	13.90	14.15
Lake Superior charcoal, Chicago	16.50	16.50	16.50	18.25
COKE, CONNELLSVILLE, Per Net Ton, at Oven:				
Furnace coke, prompt shipment.	1.50	1.50	1.50	1.60
Furnace coke, future delivery..	1.60	1.60	1.60	1.70
Foundry coke, prompt shipment	1.85	1.85	1.85	2.10
Foundry coke, future delivery..	2.10	2.10	2.10	2.25
BILLETS, &c., Per Gross Ton:				
Bessemer billets, Pittsburgh....	*20.00*	21.00	21.00	24.00
Open hearth billets, Pittsburgh.	*19.00*	20.00	21.00	24.50
Forging billets, Pittsburgh.....	*25.00*	26.00	26.00	29.00
Open hearth billets, Philadelphia	22.40	22.40	23.40	26.00
Wire rods, Pittsburgh.....	*26.00*	27.00	27.00	28.00
OLD MATERIALS, Per Gross Ton:				
Iron rails, Chicago.....	*14.00*	14.50	14.00	16.00
Iron rails, Philadelphia.....	17.00	17.00	17.00	18.00
Car wheels, Chicago.....	12.75	12.75	13.00	14.00
Car wheels, Philadelphia.....	*12.00*	12.50	13.00	13.75
Heavy steel scrap, Pittsburgh..	*12.50*	12.75	13.00	14.25
Heavy steel scrap, Chicago.....	*10.00*	10.50	11.00	12.25
Heavy steel scrap, Philadelphia.	*12.00*	12.50	13.25	14.00
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Bessemer rails, heavy, at mill..	1.25	1.25	1.25	1.25
Refined iron bars, Philadelphia..	1.22½	1.22½	1.27½	1.40
Common iron bars, Pittsburgh..	1.25	1.25	1.25	1.45
Common iron bars, Chicago....	*1.20*	1.22½	1.20	1.37½
Steel bars, Pittsburgh.....	*1.15*	1.20	1.20	1.40
Steel bars, tidewater, New York.	*1.31*	1.36	1.36	1.56
Tank plates, Pittsburgh.....	*1.25*	1.30	1.30	1.40
Tank plates, tidewater, New York	*1.41*	1.46	1.46	1.56
Beams, Pittsburgh.....	*1.30*	1.35	1.35	1.40
Beams, tidewater, New York...	*1.46*	1.51	1.51	1.56
Angles, Pittsburgh.....	*1.30*	1.35	1.35	1.40
Angles, tidewater, New York..	*1.46*	1.51	1.51	1.56
Skelp, grooved steel, Pittsburgh	*1.15*	1.20	1.20	1.40
Skelp, sheared steel, Pittsburgh.	*1.25*	1.30	1.30	1.50
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	1.90	1.90	1.95	2.15
Wire nails, Pittsburgh†.....	1.65	1.65	1.65	1.70
Cut nails, Pittsburgh†.....	1.55	1.55	1.60	1.65
Barb wire, galv., Pittsburgh†...	1.95	1.95	2.00	2.00
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York.....	*12.50*	12.60	12.75	12.75
Electrolytic copper, New York..	*12.25*	12.37½	12.50	12.50
Spelter, St. Louis.....	*5.85*	5.90	5.90	5.45
Spelter, New York.....	*6.00*	6.05	6.05	5.60
Lead, St. Louis.....	*4.32½*	4.35	4.42½	4.27½
Lead, New York.....	*4.47½*	4.50	4.50	4.40
Tin, New York.....	38.87½	38.87½	42.87½	35.12½
Antimony, Hallett, New York..	*7.70*	7.75	7.75	7.87½
Tin plate, 100-lb. box, New York	$3.84	$3.84	$3.94	$3.84

* The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

† These prices are for largest lots to jobbers.

Prices of Finished Iron and Steel f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Pacific coast, 80c. on plates, structural shapes and sheets No. 11 and heavier; 85c. on sheets Nos. 12 to 16; 95c. on sheets No. 16 and lighter; 65c. on wrought boiler tubes.

Plates.—Tank plates, ¼ in. thick, 6¼ in. up to 100 in. wide, 1.25c. to 1.30c., base, net cash, 30 days. Following are stipulations prescribed by manufacturers, with extras:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼ in. thick and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, are considered ¼-in. plates. Plates over 72 in. wide must be ordered ¼ in. thick on edge, or not less than 11 lb. per square foot, to take base price. Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. take the price of 3-16-in.

Allowable overweight, whether plates are ordered to gauge or weight, to be governed by the standard specifications of the Association of American Steel Manufacturers.

Extras.	Cents per lb.
Gauges under ¼ in. to and including 3-16 in. on thinnest edge	.10
Gauges under 3-16 in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
Gauges under No. 9 to and including No. 10	.30
Gauges under No. 10 to and including No. 12	.40
Sketches (including all straight taper plates) 3 ft. and over in length	.10
Complete circles, 3 ft. in diameter and over	.20
Boiler and flange steel	.10
"A. B. M. A." and ordinary firebox steel	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Widths over 100 in. up to 110 in., inclusive	.05
Widths over 110 in. up to 115 in., inclusive	.10
Widths over 115 in. up to 120 in., inclusive	.15
Widths over 120 in. up to 125 in., inclusive	.25
Widths over 125 in. up to 130 in., inclusive	.50
Widths over 130 in.	1.00
Cutting to lengths or diameters under 3 ft. to 2 ft., inclusive	.25
Cutting to lengths or diameters under 2 ft. to 1 ft., inclusive	.50
Cutting to lengths or diameters under 1 ft.	1.55

No charge for cutting rectangular plates to lengths 3 ft. and over.

Structural Material.—I-beams, 3 to 15 in.; channels, 3 to 15 in., and angles, 3 to 6 in. on one or both legs, ¼ in. and over, 1.30c. to 1.35c. Other shapes and sizes are quoted as follows:

	Cents per lb.
I-beams over 15 in.	1.40 to 1.45
H-beams over 18 in.	1.50 to 1.55
Angles, 3 to 6 in., inclusive, ¼ in. and up	1.30 to 1.35
Angles over 6 in.	1.40 to 1.45
Angles, 3 in. on one or both legs, less than ¼ in. thick, plus full extras as per steel bar card Sept. 1, 1909.	1.35 to 1.40
Tees, 3 in. and up	1.35 to 1.40
Zees, 3 in. and up	1.30 to 1.35
Angles, channels and tees, under 3 in., plus full extras as per steel bar card Sept. 1, 1909.	1.35 to 1.40
Deck beams and bulb angles	1.60 to 1.65
Hand rail tees	2.45
Checkered and corrugated plates	2.45

Sheets.—Makers' prices for mill shipments on sheets of U. S. standard gauge, in carload and larger lots, on which jobbers charge the usual discounts for small lots from store, are as follows:

Blue Annealed Sheets.

	Cents per lb.
Nos. 3 to 8	1.30 to 1.35
Nos. 9 and 10	1.40 to 1.45
Nos. 11 and 12	1.45 to 1.50
Nos. 13 and 14	1.50 to 1.55
Nos. 15 and 16	1.60 to 1.65

Box Annealed Sheets, Cold Rolled.

	One Pass.	Three Pass.
Nos. 10 to 12	1.55 to 1.60	.....
Nos. 13 and 14	1.60 to 1.65	.....
Nos. 15 and 16	1.65 to 1.70	1.75 to 1.80
Nos. 17 to 21	1.70 to 1.75	1.80 to 1.85
Nos. 22, 23 and 24	1.75 to 1.80	1.85 to 1.90
Nos. 25 and 26	1.80 to 1.85	1.90 to 1.95
No. 27	1.85 to 1.90	1.95 to 2.00
No. 28	1.90 to 1.95	2.00 to 2.05
No. 29	1.95 to 2.00	2.05 to 2.10
No. 30	2.05 to 2.10	2.15 to 2.20

Galvanized Sheets, of Black Sheet Gauge.

Nos. 10 and 11	1.90 to 1.95
Nos. 12, 13 and 14	2.00 to 2.05
Nos. 15, 16 and 17	2.15 to 2.20
Nos. 18 to 22	2.30 to 2.35
Nos. 23 and 24	2.40 to 2.45
Nos. 25 and 26	2.60 to 2.65
No. 27	2.75 to 2.80
No. 28	2.90 to 2.95
No. 29	3.00 to 3.05
No. 30	3.20 to 3.25

All above rates on sheets are f.o.b. Pittsburgh, terms 30 days net, or 2 per cent. cash discount in 10 days from date of invoice, as also are the following base prices per square for painted and galvanized roofing sheets, with 2½-in. corrugations:

Gauge.	Painted.	Galvanized.	Gauge.	Painted.	Galvanized.
29.....	....	$2.40	23.....	$2.40	3.50
28.....	$1.40	2.55	22.....	2.60	3.70
27.....	1.55	2.60	21.....	2.80	4.05
26.....	1.65	2.65	20.....	3.05	4.35
25.....	1.85	3.05	18.....	4.05	5.70
24.....	2.10	3.15	16.....	4.90	6.50

Wire Rods and Wire.—Bessemer, open hearth and chain rods, $26 to $26.50. Fence wire, Nos. 0 to 9 per 100 lb., terms 60 days, or 2 per cent. discount in 10 days,

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carload lots, to jobbers, annealed, $1.45; galvanized, $1.75. Carload lots, to retailers, annealed, $1.50; galvanized, $1.80. Galvanized barb wire to jobbers, $1.95; painted, $1.65. Wire nails, to jobbers, $1.65.

The following table gives the price to retail merchants on wire in less than carloads, including the extras on Nos. 10 to 16, which are added to the base price:

Fence Wire, Per 100 lb.

Nos.	0 to 9	10	11	12 & 12½	13	14	15	
Annealed	$1.65	$1.70	$1.75	$1.80	$1.90	$2.00	$2.10	$2.20
Galvanized	1.95	2.00	2.05	2.10	2.20	2.30	2.70	2.80

Market and Stone Ware in Bundles, Discount from Standing List.

Bright and Annealed:
- 9 and coarser 80
- 10 to 18 ..... 80 and 10
- 19 to 26 ..... 80 and 10 and 2½
- 27 to 36 ..... 80 and 5

Galvanized:
- 9 and coarser ..... 75 and 10
- 10 to 16 ..... 75 and 10
- 17 to 26 ..... 72½ and 10
- 27 to 36 ..... 72½

Coppered or Liquor Finished:
- 9 and coarser ..... 75 and 10
- 10 to 26 ..... 75 and 10
- 27 to 36 ..... 70 and 10 and 5

Tinned:
- 6 to 18 ..... 75 and 10 and 10

Wrought Pipe.—The following are the jobbers' carload discounts on the Pittsburgh basing card on wrought pipe, in effect from October 1, 1910:

	Steel		Iron	
Butt Weld.	Black.	Galv.	Black.	Galv.
1 to 1½ in.	..	..	49	43
½ in.	75	63	71	59
¾ to 1½ in.	79	69	75	65
2 to 3 in.	80	70	76	66
Lap Weld.				
2 in.	76	66	72	62
2½ to 4 in.	78	67	74	64
4½ to 6 in.	77	67	73	63
7 to 12 in.	75	59	71	55
13 to 15 in.	51½	..	..	..
Butt Weld, extra strong, plain ends, card weight.				
⅛, ¼, ⅜ in.	69	59	65	55
½ in.	74	68	70	64
¾ to 1½ in.	78	72	74	68
2 to 3 in.	79	73	75	69
Lap Weld, extra strong, plain ends, card weight.				
2 in.	75	69	71	65
2½ to 4 in.	77	71	73	67
4½ to 6 in.	76	70	72	66
7 to 8 in.	69	59	65	55
9 to 12 in.	64	54	60	50
Butt Weld, double extra strong, plain ends, card weight.				
½ in.	64	58	60	54
¾ to 1½ in.	67	61	63	57
2 to 3 in.	69	63	65	59
Lap Weld, double extra strong, plain ends, card weight.				
2 in.	65	59	61	55
2¼ to 4 in.	67	61	63	57
4½ to 6 in.	66	60	62	56
7 to 8 in.	59	49	62	56

Plugged and Reamed.

1 to 1½, 2 to 3 in. Butt Weld
2, 2½ to 4 in. ..... Lap Weld

} will be sold at two (2) points lower basing (higher price) than merchants' or card weight pipe. Butt or lap weld, as specified.

The above discounts are for "card weight," subject to the usual variations of 5 per cent. Prices for less than carloads are three (3) points lower basing (higher price) than the above discounts.

Pittsburgh

PITTSBURGH, PA., September 27, 1911.—*(By Telephone.)*

Pig Iron.—The market is lifeless and in the absence of any new inquiry for pig iron prices are entirely nominal. Valley furnaces continue to ask $15 at furnace for Bessemer iron, but no sales have been made at this figure for a long time. Several small sales of Bessemer ranging from 200 tons to 400 or 500 tons have been made by dealers in the past two weeks at $14.60 to $14.75 at Valley furnace. Foundry iron is weaker in sympathy with other grades. We have no sales to note and we quote Bessemer nominally at $15; basic, $12.60; malleable Bessemer, $13; No. 2 foundry, $13.25, and gray forge, $12.75, all at Valley furnace, the freight rate to the Pittsburgh district being 90c. a ton.

Steel.—New inquiry is very dull and some of the smaller steel mills are anxious for orders and are willing to cut prices to get them. Bessemer steel is firmer than open hearth, the recent price on the former being cut about $1, while the open hearth price is cut about $2 a ton. We quote Bessemer billets, 4 x 4 in., at $20 to $21; Bessemer sheet and tin bars, $21 to $22; open hearth billets, $19 to $20; open hearth sheet and tin bars, $19.50 to $20, and forging billets, $25, f.o.b. cars Pittsburgh or Youngstown.

Merchant Pipe.—A new card of discount to be issued by the National Tube Company this week, effective October 1, will show a reduction of 1 point or $2 a ton on merchant black pipe and a heavier reduction on galvanized merchant pipe. A new card of discount has been issued on boiler tubes, showing a general average reduction of $4 per ton. Prices on boiler tubes have been severely cut for some time, but it is stated that the market is firm on the new basing card. The new discounts on lap welded steel boiler tubes are now as follows:

Tube size, in.	Discount.
1¾ to 2¼	65
2½	67½
2¾ to 3¼	72
3½ to 4½	75
5 to 6	67½

(By Mail.)

The iron trade is going through one of the most critical periods in its history, and how long it will be until conditions improve is only a guess. The demoralization in prices caused by an open market has scared buyers, and purchases are limited to what may be wanted for current needs. It would seem, however, that prices of nearly all products are now about as low as they are likely to go. The smaller mills that buy their semifinished material in the open market are having trouble to come out even. Everything from pig iron to the smallest finished product is weak. Such low prices have been made on some finished products that one or two large interests are reported as not trying to make sales at present, waiting until some of the uncertainties in the market have been removed. Steel plates have sold as low as 1.20c., structural material 1.27½c., steel bars 1.15c., and other products in proportion. Bessemer billets have gone off $1 a ton and open-hearth about $2 a ton.

Ferromanganese.—Three or four consumers outside of the Pittsburgh district have inquiries out for 2000 tons or more for delivery in first half of next year. One is for 500 tons, another 750 tons and another about 1000 tons. Importers are still asking $38.50, Baltimore, for 80 per cent. for first half of next year, but, as far as known, no actual sales have been made at this price, and it is probable that on a firm offer a lower price would be named. Conditions in the steel trade are not conducive to obtaining any higher prices for ferromanganese than were paid on the large contracts closed two or three weeks ago. The freight rate to the Pittsburgh district from Baltimore is $1.95 a ton.

Ferrosilicon.—No sales are reported, but high prices are still being asked, and we quote 50 per cent. at $58, f.o.b. Pittsburgh. Blast furnace ferrosilicon is quoted as follows: 10 per cent., $23; 11 per cent., $24, and 12 per cent., $25, f.o.b. cars, Ashland, Ky., and Jackson, Ohio, furnaces. It is considered probable that on a firm offer for reasonably prompt shipment these prices would be shaded.

Muck Bar.—A local maker of muck bar, ordinarily not a seller in the open market, has recently sold about 1000 tons of high grade, made from all pig iron, at $28, Pittsburgh. The sale was made to reduce a stock of muck bar before taking inventory, and the price is regarded as slightly under the actual market. A. M. Byers & Co., Inc., at Girard, Ohio, are now operating 88 puddling furnaces, but all the muck bar there made is used in the pipe mills of the same ownership in this city, none being sold in the open market.

Skelp.—The new demand for skelp is dull, and prices have shown a decline. We quote grooved steel skelp at 1.15c. to 1.20c.; sheared steel skelp, 1.20c. to 1.25c.; grooved iron skelp, 1.40c. to 1.45c., and sheared iron skelp, 1.60c. to 1.65c., all for delivery at consumers' mills in the Pittsburgh district.

Wire Rods.—The market is quiet and prices are weak. One large maker of rods reports that it has not had a new inquiry for several weeks. The nominal price of Bessemer, open hearth and chain rods, is $27, Pittsburgh, but on a firm offer for reasonably prompt shipment $26 to $26.50 could be done.

Steel Rails.—No important orders for standard sections have been placed, but it is reported that a good deal of export tonnage is under negotiation and may be given out in the near future. Actual sales and specifications on light rails received by the Carnegie Steel Company in the past week amounted to upward of 2500 tons. There is still severe competition in the light rail market from the mills rerolling old rails. Nos. 1 and 2 rail mills of the Carnegie Steel Company at Bessemer, Pa., on which heavy sections are rolled, are being operated to

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about 60 per cent. of capacity. No. 3 light rail mill at Bessemer is down this week, but will probably be started next week. A part of the 7500 tons of standard sections taken some time ago by the Carnegie Steel Company for the Pittsburgh & Lake Erie Railroad was for open hearth rails and was rolled at the Ohio Works of this company at Youngstown. Prices on light rails from new steel are being quite well maintained, and we quote as follows: 12-lb., 1.24½c.; 16, 20 and 25-lb., 1.20½c.; 30 and 35-lb., 1.19½c. and 40 and 45-lb., 1.16c. These are mill prices, plus freight, and are the minimum of the market in carload lots, but small lots bring slightly higher prices. Standard sections are held at 1.25c. per lb., Pittsburgh, for Bessemer.

Plates.—No actual orders for steel cars were reported in the past week, but it is believed that several inquiries that have been in the market for some time will develop into actual orders shortly. No large plate work jobs are in the market at present, with disquieting rumors as to prices being named by some mills, especially by the smaller makers rolling only a limited range of sizes. We quote ¼-in. and heavier plates in the wide sizes from 1.22½c. to 1.25c., and on the narrow sizes from 1.20c. to 1.22½c., f.o.b. Pittsburgh.

Structural Material.—The Bethlehem Steel Company has taken the contract for the steel, 2600 tons, for the addition of 20 stories to the First National Bank building in this city, and has placed the contract for the fabrication of the material with the Riter-Conley Mfg. Company, of this city. Of this job 1500 tons will be Bethlehem sections to be rolled by the Bethlehem Steel Company, while the other 1100 tons will be rolled by the Carnegie Steel Company. The Jones & Laughlin Steel Company has taken 800 tons for a new building for the H. J. Heinz Company, and the McClintic-Marshall Construction Company has taken some bridges at Black River, in Louisiana, for the Louisiana & Arkansas Railroad, about 1400 tons. The Fort Pitt Bridge Works has a contract for about 50 signal bridges for the New York Central Railroad, about 500 tons. The Farris Bridge Company, Pittsburgh, has a contract for a bridge for the Grafton Traction Company, Grafton, W. Va., about 400 tons, and a bridge for Gassoway, W. Va., 200 tons. Reports are current of low prices being made on plain material, and from reliable sources it can be stated that the market is 1.30c. on beams and channels up to 15 in., while on an especially desirable order for reasonably prompt shipment 1.27½c. could be done. We therefore quote beams and channels up to 15 in. at 1.27½c. to 1.30c., f.o.b. Pittsburgh.

Bars.—The volume of new business in both iron and steel bars is light, and specifications against contracts taken some time ago are coming in at only a fairly satisfactory rate. There is still decided weakness in prices of steel bars, and while 1.20c. is still being quoted on most inquiries we note that 1.15c. is being done on attractive orders. The makers of iron bars are firmer in their views as to prices, but new business is light and specifications against contracts are only for such quantities as are absolutely needed by consumers. We quote steel bars at 1.15c. to 1.20c., Pittsburgh, but it should be noted that the price of 1.15c. is made only to the very large trade and on desirable specifications. We quote iron bars at 1.25c., Pittsburgh.

Sheets.—The low prices ruling for some time have had a stimulating effect. Both new demand and specifications have been so urgent recently that a number of the leading makers have within the past week somewhat increased their rate of operations by starting up additional hot sheet mills. We may also note that prices have shown a stronger tone and the minimum of the market on one pass box annealed black sheets seems to be 1.90c. for 28 gauge and 2.90c. for galvanized. Prices on sheets are thought to have touched bottom, and, if the improved demand continues, slightly higher prices are not improbable. The leading sheet mills are now operating to an average of close to 75 per cent. of capacity.

Tin Plate.—There is no new buying at present, but about November 1 consumers are expected to come in the market for their spring requirements, shipments on which will commence in January or February. Specifications against contracts are only fair and the amount shipped out by the mills this month will show a falling off as compared with August. Operations among leading tin plate mills are also at a lower rate of capacity this month than last. It is said that the tone of prices is slightly stronger and $3.60 base at mill for 100-lb. cokes seems to be bottom. Shipments on old contracts are still being made on the basis of $3.70 for 100-lb. cokes. The American Sheet & Tin Plate Company is receiving some heavy orders for tin plate for export, one order for 10,000 boxes having been filled recently from its Sharon Works. We continue to quote 100-lb. cokes at $3.60 to $3.70 per base box, f.o.b. Pittsburgh.

Merchant Steel.—Buying is of a hand-to-mouth character. Jobbers are carrying as light stocks as possible. September so far has shown a considerable falling off in orders and specifications, as well as in shipments, as compared with August. Prices are lower and we now quote as follows: Iron finished tire, ¼ and ½ in. and heavier, 1.40c.; under these sizes, 1.45c.; planished tire, 1.50c.; channel tire, 1.70c., base; toe calk, 1.80c.; flat sleigh shoe, 1.45c.; concave or convex, 1.60c.; cutter shoe, tapered or bent, 2.15c.; spring steel, 1.85c.; machinery steel, smooth finish, 1.75c.

Hoops and Bands.—New orders are light, being mostly for small lots to cover actual needs, but shipments against contracts are coming in at a fairly satisfactory rate, especially on hoops. We quote steel hoops at 1.35c. and bands at 1.20c., extras on the latter as per the steel bar card. On a firm offer and for a very desirable order these prices might be slightly shaded.

Rivets.—Purchases are still confined to small lots to cover actual needs and specifications from boiler shops and other consumers of rivets are slow. We quote structural steel rivets at 1.60c. to 1.65c. and boiler rivets at 1.70c. to 1.75c., f.o.b. Pittsburgh.

Wire Products.—Orders for wire nails and wire and specifications against contracts have been fairly heavy this month, the amount of actual business entered by the mills being reported as slightly in excess of the same period in August. The tone of the market seems to be slightly firmer. We quote wire nails at $1.65; cut nails, $1.55; galvanized barb wire, $1.95; painted, $1.65; annealed fence wire, $1.45, and galvanized, $1.75, all f.o.b. Pittsburgh, usual terms, full freight added to point of delivery.

Spelter.—Prices have gone off further. We quote prime grades of Western at 5.70c., East St. Louis, equal to 5.82½c., Pittsburgh. Buyers are placing only small orders for prompt shipments, fearing that prices will go still lower.

Shafting.—The demand is only for small lots. Specifications from the implement makers are reported as coming in in better volume, but not so well from the automobile builders. Prices on shafting continue irregular, and while the official discount on carload and larger lots is 60 per cent. off list, actual prices on carload and larger orders range from 60 and 5 per cent. to 60 and 10 per cent. off list, the latter discount being named only to the very largest trade.

Railroad Spikes.—No important contracts have been placed recently and new orders are still confined to small lots, mostly for repair work. We quote railroad spikes at $1.45 per 100 lb., base sizes, f.o.b. Pittsburgh.

Merchant Pipe.—Owing to the cutting in prices on black and galvanized merchant pipe, the National Tube Company will send out in a few days a new card of discounts on black and galvanized merchant pipe, naming slightly lower prices. It is not known how much the reduction will be, but it is believed that it will be heavier on galvanized pipe than on black. The largest inquiry for line pipe that has come in the market for some time is that of the Western Gas, Light, Heat & Power Company, of Canada, which is asking prices on 40,000 tons of line pipe, sizes ranging from 4½ in. up to 16½ in. It is believed that some foreign pipe mills are bidding on this inquiry, but it is hoped that the contract will come to American mills. The result will be known within a week or two. The new demand for merchant pipe is really better than might have been expected in view of the unsatisfactory condition in prices that has existed for some time. It was just one year ago, or on October 1, 1910, that the present card of discounts on merchant pipe was put into effect.

Boiler Tubes.—The market on locomotive and merchant tubes is dull, and prices are cut still deeper. It is probable that a lower discount card will be issued to take effect October 1. Present discounts have not figured in the market in actual sales for some time.

Coke.—The coke trade continues dull, a natural reflection of conditions existing in the pig iron trade. In the past week two sales of probably 4000 to 5000 tons of standard Connellsville furnace coke have been

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made at about $1.50 per net ton, at oven. There is no new demand for furnace coke, but one or two Valley furnaces continue to buy their supply from month to month. The output of coke in the Upper and Lower Connellsville regions is steadily falling off, and last week was 310,743 tons, a decrease over the previous week of 19,000 tons. We quote standard makes of furnace contracts for prompt shipment at $1.50 to $1.55 and on contracts for remainder of this year at $1.65 to $1.70 per net ton at oven. We quote 72-hr. foundry coke for prompt shipment at $1.85 and up to $2, and on contracts from $2.10 and as high as $2.40, the latter price being paid for some brands of coke that have a very high reputation in the trade.

Iron and Steel Scrap.—The local scrap market is lifeless, a good deal of material being offered by producers, but it is practically impossible for dealers to make sales except at very low figures. The situation is peculiar in the fact that consumers will not pay above $12.50 for heavy steel scrap, if that much, while dealers would probably have trouble in finding producers that would sell it to them below $12.75 to $13. All the leading consumers are taking in as little as possible. While no actual embargoes are on at present, dealers are receiving notices from nearly all their customers to hold up shipments as much as possible. There have been no sales of moment in this market in the past week. Prices are as follows per gross ton f.o.b. Pittsburgh, unless otherwise noted:

Heavy steel scrap, Steubenville, Follansbee, Sharon, Monessen and Pittsburgh delivery	$12.50 to $12.75
No. 1 foundry cast	12.75 to 13.00
No. 2 foundry cast	12.25 to 13.00
Bundled sheet scrap, f.o.b. consumers' mill, Pittsburgh district	10.75 to 11.00
Rerolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa.	13.00 to 13.25
No. 1 railroad malleable stock	11.75 to 12.00
Grate bars	9.50 to 9.75
Low phosphorus melting stock	15.50 to 15.75
Iron car axles	22.00 to 22.50
Steel car axles	17.00 to 17.25
Locomotive axles	23.00
No. 1 busheling scrap	11.50 to 11.75
No. 2 busheling scrap	8.00 to 8.25
Old car wheels	12.50 to 12.75
Sheet bar crop ends	15.25 to 15.50
*Cast iron borings	9.00
*Machine shop turnings	9.10 to 9.25
Old iron rails	14.50 to 14.75
No. 1 wrought scrap	13.50
Heavy steel axle turnings	9.75 to 10.00
Stove plate	9.50 to 9.75

*These prices are f.o.b. cars at consumers' mills in the Pittsburgh district.

Chicago

CHICAGO, ILL., September 26, 1911.

Chief interest in this market attaches to the decidedly unsettled condition regarding structural material. This line of finished product, the price of which was credited with being maintained with considerable firmness, has been found to have been subject to shading for contracts for some time past. More important, however, is the open cutting inaugurated within the past week which has brought quotations down to the level of at least 1.25c., Pittsburgh. As intimated in a previous report, certain Eastern mills have been especially eager for tonnage, which condition is understood to have precipitated the present situation. The principal letting of fabricated material was the award to the American Bridge Company of the 6490 tons for the Chicago, Burlington & Quincy office building, Chicago. The entire list of products is suffering from a shading of prices, and, although the week has brought somewhat larger tonnages, the market is considered both in its present status and in its immediate future as most unsatisfactory. Old materials are moving at prices which are the lowest that have been quoted here for nearly a decade.

Pig Iron.—A number of sales in lots up to 500 tons are reported and such inquiry as is current is limited to similar tonnages. The only favorable indications are a number of requests for advance shipment on contracts. The sellers' position is far from strong. While they have been successful for the most part in delaying consideration of first quarter business, some low prices are reported on orders covering shipments beginning this year and running over into next. The impression prevails that a large tonnage would be taken promptly by consumers for first quarter on the basis of $10, Birmingham. As it is this price is obtainable only on spot shipments of small lots, the major portion of the iron moving being held by the furnaces at $10.25. The local situation is unchanged and the week brought out exceedingly few sales of Northern iron. We quote for Chicago delivery, except for local irons which are f.o.b. furnace, the following prices on prompt shipments:

Lake Superior charcoal	$16.50 to $17.00
Northern coke foundry, No. 1	15.00 to 15.50
Northern coke foundry, No. 2	14.50 to 15.00
Northern coke foundry, No. 3	14.25 to 14.50
Northern Scotch, No. 1	16.00
Southern coke, No. 1 foundry and No. 1 soft	14.85 to 15.10
Southern coke, No. 2 foundry and No. 2 soft	14.35 to 14.85
Southern coke, No. 3	14.10 to 14.35
Southern coke, No. 4	13.85 to 14.10
Southern gray forge	13.60 to 13.85
Southern mottled	13.60 to 13.85
Malleable Bessemer	14.50 to 15.00
Standard Bessemer	17.40
Basic	15.50
Jackson Co. and Kentucky Silvery, 6 per cent.	17.90
Jackson Co. and Kentucky Silvery, 8 per cent.	18.90
Jackson Co. and Kentucky Silvery, 10 per cent.	19.90

Rails and Track Supplies.—The rail market continues to be void of interesting sales and the railroads themselves deny a knowledge of future requirements. Bookings by the leading interest were comparatively meager. While specifications for track fastenings have held up in fairly good volume, prices have gradually sagged and the basis of 2.10c. for bolts is undoubtedly at the top of the market. Prices on railroad spikes have likewise yielded under stress of the competitive situation. The Louisville & Nashville Railroad has placed with the Mount Vernon Car Company a contract for 500 steel underframe and 500 gondola cars. We quote standard railroad spikes at 1.60c. to 1.70c., base; track bolts with square nuts, 2.05c. to 2.10c., base, all in carload lots, Chicago; standard section Bessemer rails, 1.28c.; open hearth, 1.34c.; light rails, 40 to 45 lb., 1.16c. to 1.20½c.; 30 to 35 lb., 1.19½c. to 1.24c.; 16, 20 and 25 lb., 1.20½c. to 1.25c.; 12 lb., 1.25c, to 1.30½c.; angle bars, 1.50c. to 1.60c., Chicago.

Structural Material.—Prices for plain structural shapes, in connection with which the market has exhibited perhaps greater firmness than in any other finished line, have at last succumbed to the necessities of some of the Eastern mills. Low prices emanating from one source brought out similar concessions from all the other mills, and quotations $2 a ton below the Pittsburgh basis of 1.35c. are freely reported. It also develops that a large number of contracts for plain material were placed in this territory in the past few months on the basis of 1.30c. At the present writing the local market is decidedly unsettled. Contracts for fabricated steel placed the past week include 6490 tons for the Chicago, Burlington & Quincy office building, Chicago, awarded to the American Bridge Company; 1265 tons for the Medinah Temple, Chicago, to A. Bolter's Sons, and 185 tons for the Chicago, Milwaukee & St. Paul Railroad to the Milwaukee Bridge Company. While calling attention to the concessions named above, we continue to quote for mill shipment, Chicago delivery, the nominal price of 1.53c. and from store 1.75c.

Plates.—Specifications for plates are reported as somewhat improved. Generally speaking, however, the tonnage is not what it should be and mills are inclined to cater to offerings of desirable specifications. Concessions from full prices to the extent of at least $1 a ton are quite general. Our quotations continue to be nominally, for Chicago delivery, mill shipment, 1.53c., and from jobbers' stocks, 1.75c.

Sheets.—The tonnage of sheet orders continues in fair volume, but competition for orders is undiminished and concessions by sheet bar makers have augmented rather than diminished the prevalent shading. Prices $2 a ton below the regular basis are the usual quotations. We quote Chicago prices as follows: Carload lots, from mill: No. 28 black sheets, 2.18c.; No. 28 galvanized, 3.18c.; No. 10 blue annealed, 1.68c. Prices from store, Chicago, are: No. 10, 1.95c. to 2.05c.; No. 12, 2c. to 2.10c.; No. 28 black, 2.45c. to 2.55c.; No. 28 galvanized, 3.45c.

Bars.—The steel bar situation shows a tendency toward lower prices. Reports are rife of extremely low quotations. At Chicago a price of 1.33c. is no longer uncommon. Some encouragement is lent to the situation by reports of much heavier specifications. Bar iron moves slowly and a willingness on the part of some manufacturers to accept 1.20c. and even lower has operated against maintaining the position recently taken on the basis of 1.25c. We quote as follows, f.o.b. Chicago: Soft steel bars, 1.38c. to 1.43c.; bar iron,

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1.22½c. to 1.25c.; hard steel bars rolled from old rails, 1.20c. From store, soft steel bars, 1.70c. to 1.80c., Chicago.

Wire Products.—Following the recent prevalence of concessions in the price of wire nails, in connection with which a considerable tonnage was placed, an effort generally well received by the trade is being made to re-establish full quotations. Sales of both wire nails and barb wire leave room for some improvement, but the buying of fence wire following the announcement of spring dating terms has assumed decidedly large proportions. Jobbers' carload prices, which are quoted to manufacturing buyers, are as follows: Plain wire, No. 9 and coarser, base, 1.68c.; wire nails, 1.88c.; painted barb wire, 1.88c.; galvanized, 2.18c.; polished staples, 1.88c.; galvanized, 2.18c., all Chicago.

Cast Iron Pipe.—The Lynchburg Foundry Company, Lynchburg, Va., has obtained the order for 5000 tons of pipe for the city of Muskegon, Mich. New bids will be asked in the spring on the remainder of this city's requirements, consisting of 2500 tons of 48-in. pipe. A letting of 2100 tons is appointed for Kansas City September 27. Smaller lettings, including 200 tons for Canton, Mo., and 400 tons for a lower Michigan city, are reported. We quote as follows, per net ton, Chicago: Water pipe, 4-in., $26.50; 6 to 12-in., $24.50; 16-in. and up, $24, with $1 extra for gas pipe.

Old Material.—The market for old materials in this territory is experiencing the lowest prices that have obtained in a number of years. Buying by the larger consuming interests is practically at a standstill and every purchase apparently brings out a lower price. Such trading as is current is largely between dealers covering unfilled orders. A lot of 500 tons of rerolling rails, disposed of direct to a consumer from a railroad, brought only $12.50, Chicago. Railroad offerings of scrap the past week included lists from the Chicago, Burlington & Quincy for about 2500 tons; Chicago, Rock Island & Pacific, about 3000 tons; Chicago & Great Western, 500 tons, and small lists from the Chicago & Eastern Illinois, Iowa Central, Vandalia Line and New York Central. We have revised our prices on almost all items and quote for delivery at buyer's works, Chicago and vicinity, all freight and transfer charges paid, per gross ton, as follows:

Old iron rails	$14.00 to $14.50
Old steel rails, rerolling	12.25 to 12.75
Old steel rails, less than 3 ft	11.00 to 11.50
Relaying rails, standard section, subject to inspection	24.00
Old car wheels	12.75 to 13.00
Heavy melting steel scrap	10.00 to 10.50
Frogs, switches and guards, cut apart	10.00 to 10.50
Shoveling steel	9.50 to 10.00
Steel axle turnings	8.50 to 9.00

The following quotations are per net ton:

Iron angles and splice bars	$12.00 to $12.50
Iron arch bars and transoms	13.25 to 13.75
Steel angle bars	9.75 to 10.25
Iron car axles	17.75 to 18.25
Steel car axles	16.00 to 16.50
No. 1 railroad wrought	10.50 to 11.00
No. 2 railroad wrought	9.50 to 10.00
Steel knuckles and couplers	9.75 to 10.25
Steel springs	10.00 to 10.50
Locomotive tires, smooth	14.50 to 15.00
Machine shop turnings	6.00 to 6.50
Cast and mixed borings	5.50 to 6.00
No. 1 busheling	8.50 to 9.00
No. 2 busheling	6.50 to 7.00
No. 1 boilers, cut to sheets and rings	7.25 to 7.75
Boiler punchings	12.00 to 12.50
No. 1 cast scrap	10.25 to 10.75
Stove plate and light cast scrap	9.00 to 9.50
Railroad malleable	9.75 to 10.25
Agricultural malleable	9.00 to 9.50
Pipes and flues	7.50 to 8.00

Philadelphia

PHILADELPHIA, PA., September 26, 1911.

Developments outside the trade have had a rather disturbing influence on the market and business continues dull. Price uncertainties also exert an influence on the situation and consumers still make purchases conservatively. While the movement in pig iron is largely confined to prompt lots a few sizable sales are reported, and at least one inquiry for a large quantity of foundry iron for this year's delivery is before the trade. New business in basic iron has also developed. Plates and structural shapes are now quotable a dollar a ton under recent prices, but concessions have not resulted in any better buying in any of the rolled products. It is doubtful, however, that present open quotations represent the full concession that might be had if attractive business was offered. Further inquiries for vessels have come to the shipyards. Estimates are now being made on one large vessel for the Pacific coast trade, involving 5400 tons of plates and shapes, and plans for two additional vessels are under way for the same interest. The old material market continues inactive, with prices weak and further concessions noticeable in some grades.

Iron Ore.—A sale of an occasional odd cargo of foreign ore to piece out this year's requirements is noted, but there have been no developments in the way of contracts for extended deliveries. Importations during the week ended September 23 include 3900 tons from Greece, 5200 tons from Cuba and 6594 tons from Spain.

Pig Iron.—The inquiry of the Pennsylvania Railroad, covering its pig iron needs for the last quarter of the year, is of particular interest, being considerably larger than that for several quarters past. It covers from 1700 to 5200 tons of high silicon foundry iron, 1700 to 5200 tons of low silicon foundry, 900 to 1800 tons of Lake Superior and 900 to 1800 tons of Southern charcoal iron—an aggregate of from 5200 to 14,000 tons, the company reserving the right to take the minimum or any part of the maximum amount. It is said, however, that indications point to the purchase of the maximum quantity. An inquiry for 1000 tons of malleable pig is also reported, and the cast iron pipe foundries are feeling around for several large blocks of low grade iron. While the trade is particularly encouraged by these larger inquiries the general demand for the higher foundry grades has been unimportant. Consumers are inclined to place orders for moderate quantities for early delivery and then await developments rather than to cover fully for several months ahead. Under such conditions producers find themselves constantly urged for deliveries, as buyers' stocks are necessarily low and delays in shipment become a serious inconvenience. As a rule shipments are exceeding the current daily production. Sales of standard brands of eastern Pennsylvania No. 2 X foundry continue to be made at $15 to $15.25, delivered, and quotations for fourth quarter are firm at that basis. In a few instances inquiries for iron for next year's delivery are reported more numerous, one which recently came out being for 1200 tons for shipment over the first half of 1912; but each seller appears to be waiting for the other to make a move, and no definite prices for such delivery have come out. The cast iron pipe makers, who have been active inquirers recently for low grade iron, are reported to have made moderate purchases, but are still in the market for a considerable quantity, the negotiations including one large block of Southern iron. Virginia foundry iron, particularly in the higher grades, has not been very active, small and moderate lots of No. 2 X going at $12.50, furnace, for last quarter shipment. A sale of 2500 tons of pipe iron to a Virginia interest, delivery over the next three months, is reported at a comparatively good price. Very little inquiry for rolling mill forge is noted. Basic iron shows a tendency to become more active. One sale, covering 3000 tons for fourth quarter shipment, at $14.50, delivered, is reported, and it is said that the same buyer purchased an additional like amount at the same price. Another steel maker is inquiring for 1000 tons of basic for October shipment, while a third is sounding the market for several thousand tons for somewhat later delivery. Low phosphorus iron has been rather quiet, transactions being confined to small lots. The following range of prices is named for standard brands, delivered in buyers' yards in this vicinity for prompt or fourth quarter shipment:

Eastern Pennsylvania No. 2 X foundry	$15.00 to $15.25
Eastern Pennsylvania No. 2 plain	14.75 to 15.00
Virginia foundry	15.00 to 15.50
Gray forge	14.50
Basic	14.50 to 15.00
Standard low phosphorus	20.00 to 20.50

Ferroalloys.—Some little inquiry for ferromanganese is noted, but at the quotations now named, $38.50, Baltimore, no business is moving in this district. Prices of 50 per cent. ferrosilicon have been moved up and $60, delivered, is now being quoted. Several inquiries are reported, but orders are still lacking.

Billets.—Almost an entire lack of interest in the market is noted on the part of consumers. Specifications against orders come to mills rather slowly, and new business is confined to customers' immediate wants, which are usually small. Mills, therefore, are operating on a very unsatisfactory basis and have little business ahead. While the market has not been seriously tested small transactions are being made at about $22.40 for

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open hearth rolling billets and $27.40 for ordinary forging billets, delivered in this vicinity.

Plates.—Very little change in the nature or scale of the business coming to the mills is reported. Current orders continue small and are largely of a miscellaneous nature, one of several hundred tons being considered particularly good. The general run of orders and specifications, however, enables mills to maintain a fairly even rate of production, although rolling schedules cannot be prepared very far ahead. Plates for structural work continue the most active, although additional inquiries for ship plates are noted, one of which is for 3600 tons. Prices are now openly quoted at a slightly lower price, the market ranging from 1.45c. to 1.50c., delivered here, for ordinary plates.

Structural Material.—There is still an absence of any important demand in this immediate territory. Several of the smaller projects under way have, however, been closed, while a fair demand for plain shapes is reported. Plans have been revised for the proposed municipal convention hall and bids will be opened October 9. A much smaller amount of structural material will be required. An inquiry covering 1800 tons of boat shapes is noted. Several bridge contracts are pending, but recent orders for this class of work in this vicinity have been small. Quotations for plain shapes have been reduced $1 a ton, and open prices ranging from 1.45c. to 1.50c., delivered here, are now named.

Sheets.—A slight betterment in the demand for sheets is reported by Eastern makers, but orders are not of sufficient size to change mill operations. There is still considerable complexity regarding prices, competition is sharp and definite quotations are uncertain.

Bars.—The demand for either steel or iron bars is extremely quiet. Consumers' requirements are light and competition for such business as may be offered is sharp. Steel bars are practically on a 1.35c., delivered, basis. Refined iron bars are being fairly well maintained at 1.22½c. to 1.27½c., delivered, but the market has not been tested by any substantial inquiries.

Coke.—While moderate contracts for foundry coke are made from week to week there is a lack of snap in the demand, and the larger share of the business is in prompt lots. Some moderate lot business in furnace coke is pending, but the bulk of the transactions in this grade are also in small lots. Prices are unchanged, although somewhat firmer, the following range per net ton being named for deliveries in this vicinity:

Connellsville furnace coke	$3.80 to $4.00
Foundry coke	4.25 to 4.60
Mountain furnace coke	3.40 to 3.60
Foundry coke	3.85 to 4.20

Old Material.—The market continues weak, consumers showing practically no interest in the situation. Several of the heavy melting steel buyers refuse to consider purchases even at what are considered attractive prices, their requirements being fully covered. One sale of something over 1000 tons of No. 1 heavy melting steel scrap, through a dealer, is reported at $12.50, while transactions between dealers have been made as low as $12. Rolling mill scrap has been moved in small quantities, usually, however, at slight price concessions. A recent transaction of 1000 tons of old car wheels at $12.50 is reported, but the same buyer has, it is said, now reduced the offering price to $12. In few grades has sufficient business been transacted to establish prices, and quotations named are largely nominal. The following range about represents the basis at which business could be done, for delivery in buyers' yards, eastern Pennsylvania and nearby points, taking a freight rate from Philadelphia varying from 35c. to $1.35 per gross ton, for shipment ranging from prompt to the remainder of the year:

No. 1 heavy melting steel scrap	$12.00 to $12.50
Old steel rails, rerolling (nominal)	13.50 to 14.00
Low phosphorus heavy melting steel scrap	16.75 to 17.25
Old steel axles (nominal)	18.00 to 18.50
Old iron axles (nominal)	23.50 to 24.00
Old iron rails	17.00 to 17.50
Old car wheels	12.00 to 12.50
No. 1 railroad wrought	14.00 to 14.50
Wrought iron pipe	11.75 to 12.25
No. 1 forge fire	10.50 to 11.00
No. 2 light iron (nominal)	6.50 to 7.00
Wrought turnings	8.00 to 8.25
Cast borings	7.50 to 7.75
Machinery cast	12.50 to 13.00
Railroad malleable (nominal)	11.00 to 11.50
Grate bars, railroad	9.50 to 10.00
Stove plate	9.50 to 10.00

Cleveland

CLEVELAND, OHIO, September 26, 1911.

Iron Ore.—Sales aggregating 10,000 tons, mostly low-grade ore, were made by one ore firm during the week, and a few other sales of quite small lots are reported. No business of any size, however, is in prospect and it is probable that only a very limited tonnage will be sold during the remainder of the season. Ore firms are well up on shipments and the movement has fallen off. We quote prices as follows: Old range Bessemer, $4.50; Mesaba Bessemer, $4.25; old range non-Bessemer, $3.70; Mesaba non-Bessemer, $3.50.

Pig Iron.—A new low price on basic iron is being made by a Cleveland interest, which is quoting at $12.50 for shipment from Canal Dover, this price being 10c. a ton lower than the selling price made by the same interest for 1000 tons for shipment to Pittsburgh last week. The low quotation, however, has as yet brought out no additional business. While recent prices of local furnaces for foundry iron for Cleveland delivery are being well maintained, the market is weaker in the Valley. The quotation of $13.50, Valley furnace, for No. 2 foundry, which has prevailed for some time, is being shaded 25c. a ton. While there is little demand for foundry grades in this territory the foundry melt appears to have improved during the past few weeks and consumers are taking all of their iron on contract. Business is rather quiet with jobbing foundries but the foundries of manufacturing plants making various lines of products are fairly busy. One local selling agency covering a wide territory reports that its business in foundry iron at present is about 80 per cent. of normal. The demand for malleable iron is as light as that for steel making iron. A Canton, Ohio, malleable plant had an inquiry out for a few days for 1000 tons of malleable but decided not to buy for the present. Cherry Valley furnace will be blown in this week. For Cleveland delivery we quote as follows for prompt shipment and for the last quarter:

Bessemer	$15.90
Basic	13.40
Northern foundry, No. 2	13.75
Gray forge	$13.00 to 13.25
Southern foundry, No. 2	14.35 to 14.85
Jackson Co. silvery, 8 per cent. silicon	17.30 to 17.85

Coke.—The only activity in the market is a light demand for foundry grades in small lots, mostly for prompt shipment. There is no inquiry for furnace coke. We quote standard Connellsville furnace coke at $1.50 to $1.55, per net ton, at oven, for prompt shipment, and $1.60 to $1.70 for the remainder of the year. Connellsville 72-hr. foundry coke is held at $1.85 to $2.15 for prompt shipment and $2.10 to $2.40 for contract.

Finished Iron and Steel.—There is an open market now on steel bars, plates and structural material and competition is extremely active for orders to fill mills with tonnages. The open quotation on steel bars is 1.15c., Pittsburgh, but it appears probable that this price can be shaded to 1.10c. for a round lot order with desirable specifications. On structural material and plates the open quotation is 1.25c., Pittsburgh. While there are no reports of lower prices on shapes, light plates are being sold as low as 1.20c. Sheet prices are also weaker. While the nominal quotation is 1.90c., Pittsburgh, for No. 28 black, and 2.90c. for No. 28 galvanized, these prices are being shaded $1 a ton, and in some cases an additional concession is being made of selling on a Valley instead of a Pittsburgh shipping basis. The activity of the mills after the business has resulted in considerable increase in the volume of orders. While some buyers are holding off to see if the bottom of the market has been reached, others have placed quite liberal stock orders for bars and structural material. Consumers for some time have been buying largely in small lots as material is needed and stocks are generally low. They are now taking advantage of the low prices to replenish their stocks. Bids have been received for the bridges for the Pennsylvania Railroad crossing elimination in Cleveland requiring 5000 tons. No new building work has developed, but it is expected that the low price on structural material will stimulate some activity. The demand for sheets is fairly good. Forging billets are weaker, being quoted in this market at $25, Pittsburgh. The demand for iron bars is a little more active. We quote iron bars at 1.20c., Cleveland mill.

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Local mills will probably not meet steel bar prices. Hard steel bars are unchanged at 1.10c., Pittsburgh.

Old Material.—The market is very dull. The absence of a demand together with the decline in prices on finished lines has resulted in further price reductions of 25c. to 50c. a ton on several grades of scrap. Some of the mills are willing to buy material at about present quotations but little is to be had at the current market prices. Producers as well as dealers are holding their scrap for a firmer market. Dealers believe that prices have now reached the bottom. Dealers' prices, per gross ton, f.o.b. Cleveland, are as follows:

Old steel rails, rerolling	$12.50 to $12.75
Old iron rails	14.50 to 15.00
Steel car axles	17.50 to 18.00
Heavy melting steel	11.25 to 11.50
Old car wheels	11.25 to 11.50
Relaying rails, 50 lb. and over	22.50 to 23.50
Agricultural malleable	10.75 to 11.25
Railroad malleable	11.50 to 12.00
Light bundled sheet scrap	9.50 to 10.00

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles	$18.75 to $19.25
Cast borings	6.50 to 6.75
Iron and steel turnings and drillings	7.00 to 7.25
Steel axle turnings	8.00 to 8.50
No. 1 busheling	9.25 to 9.75
No. 1 railroad wrought	11.50 to 11.75
No. 1 cast	11.25 to 11.75
Stove plate	9.25 to 9.50
Bundled tin scrap	11.00 to 11.50

Cincinnati

CINCINNATI, OHIO, September 27, 1911.—*(By Telegraph.)*

Pig Iron.—A significant feature of the present situation is that shipments on contract are good. Last month all Southern furnaces shipped out more iron than they made. The present month will probably end with as satisfactory a record. While the reduction in stocks is comparatively small, it seems to be steady, and many dealers consider this a hopeful sign. The inquiry for foundry iron is very light, and with the exception of a couple of 200-ton lots wanted by Indiana melters business under negotiation practically covers only carload quantities. Buyers are evincing an unusual degree of timidity and cannot be persuaded to cover for more than immediate requirements. An Eastern railroad is asking for 1800 tons of charcoal iron and is expected to contract soon for half this quantity for shipment this year. A northern Ohio melter bought 300 tons of Southern No. 2 foundry for last quarter delivery at $10, Birmingham. Other smaller lots have been contracted for at the same figure, and it is rumored that where a desirable tonnage was involved the shipments could probably be extended over into the fore part of next year. As far as known, books have not been opened for 1912 business and the only quotations out are considered prohibitive. Northern iron is in no better demand and is quoted at $13, Ironton, for last quarter shipment, although several furnaces are holding out for $13.25. Malleable is dull and unchanged around $13.25, Ironton. Based on freight rates of $3.25 from Birmingham and $1.20 from Ironton, we quote, f.o.b. Cincinnati, as follows, for prompt shipment:

Southern coke, No. 1 foundry and 1 soft	$14.00 to $14.25
Southern coke, No. 2 foundry and 2 soft	13.25 to 13.75
Southern coke, No. 3 foundry	12.75 to 13.25
Southern coke, No. 4 foundry	12.50 to 13.00
Southern gray forge	12.50 to 13.00
Ohio Silvery, 8 per cent. silicon	16.95 to 17.20
Lake Superior coke, No. 1	14.70 to 14.95
Lake Superior coke, No. 2	14.20 to 14.45
Lake Superior coke, No. 3	13.70 to 13.95
Basic, Northern	14.20 to 14.45
Standard Southern car wheel	25.50 to 25.75
Lake Superior car wheel	19.00

(By Mail.)

Coke.—Local interests are figuring on a year's supply of furnace coke that will average between 6000 and 8000 tons per month. With this exception there is little new inquiry before the trade for either furnace or foundry grades. However, the foundries, which are nearly all covered for this year's requirements, are taking coke on their contracts in a very satisfactory manner, and shipments are moving much faster than present conditions presumably warrant. This is especially true in the Connellsville and Wise County districts. Prices are unchanged in all three fields on 72-hr. coke, which is quoted around $1.90 to $2 per net ton at oven for prompt shipment, with the usual advance of about 10c. to 25c. on future business. Furnace coke is offered in the Connellsville field around $1.50 to $1.60 for prompt movement, with a few cents advance asked for future shipment. Pocahontas and Wise County brands are usually bringing from 10c. to 15c. per net ton above these figures.

Finished Material.—The market has apparently slipped into a hole and there is very little activity in any particular line, although business during the first half of the month will probably be sufficient to bring the total average for September up to August's record. It is also possible that the small order business that does not attract attention until final statements are made up will make a better showing for the present month than is now anticipated. Prices are not firm, and while the nominal price for steel bars is 1.20c., Pittsburgh, it is understood that offers would be accepted at a little below this figure. The local warehouse quotation remains around 1.65c. There is a slightly better inquiry for hoops and bands.

Old Material.—Dealers are certainly not expecting any immediate improvement in market conditions, and, as consumers of scrap are contracting sparingly, a further reduction in prices seems apparent. No change upward is expected until there is an improvement in pig iron. The approximate prices paid by buyers, delivered in their yards, southern Ohio and Cincinnati, are as follows:

No. 1 railroad wrought, net ton	$10.00 to $10.50
Casting borings, net ton	4.50 to 5.00
Steel turnings, net ton	5.50 to 6.00
No. 1 cast scrap, net ton	9.25 to 9.75
Burnt scrap, net ton	6.25 to 6.75
Old iron axles, net ton	16.25 to 16.75
Bundled sheet scrap, gross ton	7.25 to 8.25
Old iron rails, gross ton	13.25 to 13.75
Relaying rails, 50 lb. and up, gross ton	20.75 to 21.50
Old car wheels, gross ton	10.00 to 10.50
Heavy melting steel scrap, gross ton	9.75 to 10.25

Birmingham

BIRMINGHAM, ALA., September 25, 1911.

Pig Iron.—This market is extremely quiet, with current quotations on prompt shipments or for delivery the remainder of the year ranging from a basis of $10.25 to $10.75, Birmingham, for No. 2 foundry. Recent sales consist of an aggregate of 1250 tons of a favorite brand for shipment the remainder of the year at $10.50 for No. 2 soft; an aggregate of 2500 tons of Nos. 3 and 4 foundry, for shipment the remainder of the year, at a slight advance over a basis of $10.25 for No. 2 soft; 300 tons of high manganese iron, with a comparatively low silicon content, for shipment commencing immediately, at $11, and 200 tons of high manganese, high silicon iron, for last quarter delivery, at $11.50. Carload lots of No. 1 soft were sold in the week at $10.75 and such lots of gray forge and mottled as were available could not be had at lower figures than a strict $10.50, Birmingham, basis for No. 2 foundry. The demand covered a very wide range of territory and but a small proportion of the inquiries received resulted in sales. So far but few propositions in definite form have been submitted for shipment after January 1, and the market price for such deliveries is no more determined than for some weeks past. It is believed that with certain interests the price being accepted for deliveries over the remainder of this year could be made applicable to shipments through the first quarter of next; however, the majority of producers still refuse to entertain offers for any deliveries after January 1. The movement from furnace yards continues at a fairly satisfactory rate, but mention is now frequently made of the tonnage that is being held up on contracts, and it is quite likely that considerable iron engaged for delivery during the third quarter will, of necessity, be carried over the later delivery. At this time the most significant inquiry pending is a round lot of charcoal iron for delivery the last quarter of this year.

Cast Iron Pipe.—Kansas City, Mo., is to place a contract for some 2000 tons of water pipe the coming week and smaller lots are to be placed for requirement at Dothan, Ala., and a point in Colorado. With these exceptions the business actually in sight consists of comparatively small lots for maintenance work. The local operations at plants have not been changed, although repairs to the North Birmingham plant of the United States Cast Iron Pipe & Foundry Company are now well under way and it will probably be put in operation early in November. It is understood that, with the operation of the North Birmingham plant, the Bessemer plant of the United States Company, as well

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as the Anniston plant, will be repaired in the order given. The schedule of prices for water pipe has not changed and we continue to quote as follows, per net ton, f.o.b. cars here: 4 to 6-in., $23; 8 to 12-in., $22; over 12-in., average, $21, with $1 per ton extra for gas pipe.

Old Material.—Dealers' asking prices are considered 50 cents per ton lower for all grades and we revise quotations accordingly. Recent trading involved a fair tonnage, but with the steel grades principally in demand. So far none of the recent inquiries from Eastern mills have resulted in sales and the buying continues on a hand-to-mouth order by Southern consuming interests. Recent additions to dealers' stocks are comparatively small. We revise quotations as follows, per gross ton, f.o.b. cars here:

Old iron axles (light)	$13.00 to $13.50
Old steel axles (light)	12.00 to 12.50
Old iron rails	12.00 to 12.50
No. 1 railroad wrought	10.50 to 11.00
No. 2 railroad wrought	9.00 to 9.50
No. 1 country wrought	7.00 to 7.50
No. 2 country wrought	6.50 to 7.00
No. 1 machinery, cast	9.00 to 9.50
No. 1 steel	8.50 to 9.00
Tram car wheels	8.00 to 8.50
Standard car wheels	9.50 to 10.00
Light cast and stove plates	6.50 to 7.00

Announcement is made that the charcoal furnace of the Eagle Iron Company at Attalla, Ala., will be blown in for a period of three months' operation. It will run on ore from a deposit recently found in Mississippi and the results obtained will be watched with interest.

The Gadsden Car Works, Gadsden, Ala., is now in full operation and affords employment to some 500 men.

The steel works and finishing plant of the Southern Iron & Steel Company at Alabama City, Ala., are now in full operation, but no definite announcement has been made as to when the blast furnace at that plant will be blown in.

The German Iron Market

BERLIN, September 14, 1911.

In pig iron quiet still reigns, new ordering being held in abeyance till the new syndicate has adopted its price list for 1912. It is stated in an apparently authentic form that small advances will be made in the highest grades, as well as in the low-class Luxemburg-Lorraine grades; other prices will be left unchanged. It is reported that selling for 1912 delivery will not begin before October 1. The organization will meet to-morrow to complete the formalities requisite to beginning operations under the new arrangement. It now appears that the Luxemburg-Lorraine furnaces have entered the syndicate as regular members, instead of merely making a price arrangement, as seemed probable at first.

The production of pig iron in August amounted to 1,285,942 metric tons, or about 4160 tons less than in July. The slightly down tendency of production since the spring months is thus seen to continue. The August output was only 23,000 tons more than for August, 1910. The shipments of the Steel Works Union in August make a better impression than these figures. They amounted to 475,467 tons for steel rails, structural forms and billets, comparing with 461,357 tons in July and 446,590 tons in August, 1910. The shipments of billets gained 14,400 tons over July and rails 6900 tons, while structural shapes dropped off 7200 tons. The export figures are less satisfactory than the splendid showing made by July. Exports of billets registered the best gain; the total was 57,900 tons, against 33,560 tons for August, 1910; and structural shapes also rose from 31,878 to 33,670 tons; but steel rails to the amount of only 38,195 tons, against 48,900 tons last year, were exported. The imports of iron ores reached 1,061,000 tons, which compares with 1,016,000 tons last year.

From the Silesian district it is reported that rolling mill products have been sold in large quantities since August 1, and that the mills can take on but little additional work for the rest of the year. Prices are firmly held, after advances had taken place in most products quite recently. Pig iron and steel billets are scarce. The position of the market in that part of the country is evidently even better than in the west.

The manufacturers of high-grade steel in the region of Krefeld have recently tried to induce some of the West German chambers of commerce to appeal to the government to increase the duty on steel of that kind. They argue that they cannot make headway in the foreign markets against the old, well-established English, Swedish and Austrian brands, while even at home they are closely crowded by their foreign competitors, and they further point out the unreasonableness of collecting the same duty on the highest grades as on the ordinary qualities. The chambers took the matter under consideration, but the majority of them were opposed to an increase of the duty. Others pointed out that it would be impossible to persuade the government to interfere with the tariff law before the expiration of the existing commercial treaties. The steel producers also asked the influence of the chamber to secure a more extensive use of German steel of the highest grades in all government establishments. Such assistance was promised, but the answer of the chambers indicated that it would be impossible to shut out all steel of this kind from the German market.

Some further dividends have been declared in the iron trade, showing much better results than the Phoenix dividend referred to last week. The Rombacher Hüttenwerke, a big Lorraine concern with a capital of 50,000,000 marks, pays 9 per cent, as against 5 per cent. for last year, although this year's capital is 5,000,000 marks greater than last year's. The Rheinische Stahlwerke (capital 40,000,000 marks, against 35,000,000 marks last year) will distribute 8 per cent., as compared with 7 per cent. last year. The Hasper Eisen und Stahlwerk has declared a dividend of 10 per cent.; last year it paid 8 per cent.

The announcement of these dividends, splendid as they are, made very little impression on the stock mraket. For some days the Morocco tangle has weighed heavily on the exchanges and prevented anything like a hopeful spirit from coming into play in response to such dividends. The Berlin market was in a panicky state for several days last week, and iron shares suffered severely. This week an advance was made at first, but a weaker tone was noted again to-day in connection with *The Iron Age* weekly review, a summary of which was cabled to Berlin.

Buffalo

BUFFALO, N. Y., September 26, 1911.

Pig Iron.—Inquiry in the Buffalo district has fallen off in volume during the past week and the total would probably not exceed 2500 tons. The aggregate of orders placed is also less, reaching only about 4000 tons of foundry grades with small quantities of malleable and charcoal and confined almost entirely to 1911 delivery. The slackened inquiry is due undoubtedly to the fact that customers do not require iron for spot shipment and the recent advance in prices has retarded placement. Neither buyers nor sellers are as yet inclined to consider 1912 orders. Furnaces are still making heavy shipments on contracts and stocks on yards are being steadily reduced. Prices are unchanged. We quote as follows, f.o.b. Buffalo, for prompt and fourth quarter shipment:

No. 1 X foundry	$14.00 to $14.25
No. 2 X foundry	13.75 to 14.00
No. 2 plain	13.75 to 14.00
No. 3 foundry	13.50 to 13.75
Gray forge	13.50
Malleable	13.75 to 14.25
Basic	13.75 to 14.25
Charcoal	16.50 to 17.50

Finished Iron and Steel.—Inquiry for steel bars has been light for the week and the price situation somewhat unsettled, 1.20c. being the ruling quotation. For bar specialties, tire, shoe and spring steel, etc., the price has been more stable. The market in wire nails has been active at $1.65 to dealers and $1.70 to $1.75 to smaller users and consumers. Orders in general lines for the week seem to have been less in volume than for some time past. Fabricating shops are still busy, having work enough to keep them going for the next three or four months; but the week has shown a lull in new business. Bids are now going in for the steel for the Duguid Building at Syracuse requiring about 100 tons and bids are soon to be received for the remodeling of the Broadway Arsenal, Buffalo, into a City Convention Hall and Exposition Hall, for which revised plans have been prepared calling for a considerable amount of steel.

Old Material.—There has been no improvement from the pronounced dullness that has existed for the past two weeks. Very little new business has developed and shipments on contracts are light. There has

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been some demand for turnings from outside the district, but no transactions except for small amounts have been noted. Prices remain stationary. We quote as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel	$12.50 to $13.00
Low phosphorus steel	16.00 to 16.50
No. 1 railroad wrought	14.00 to 14.50
No. 1 railroad and machinery cast scrap	13.50 to 14.00
Old steel axles	18.50 to 19.00
Old iron axles	22.00 to 22.50
Old car wheels	13.00 to 13.50
Railroad malleable	12.75 to 13.00
Boiler plate	12.50 to 13.00
Locomotive grate bars	11.00 to 11.50
Pipe	9.25 to 9.50
Wrought iron and soft steel turnings	7.15 to 7.40
Clean cast borings	7.00 to 7.25

Boston

BOSTON, MASS., September 26, 1911.

Old Material.—While prices are unchanged from last week, as far as current transactions have been affected the market is weaker. Little business has been done, either between dealers or with the mills, the latter buying from hand to mouth only. The prices quoted below are those offered by the large dealers to the producers and to the smaller dealers and collectors, per gross ton, carload lots, f.o.b. Boston and other New England points taking Boston rates from eastern Pennsylvania points. In comparison with Philadelphia prices the differential for freight of $2.30 a ton is included. Mill prices are approximately 50c. a ton more than dealers' prices. The quotations follow:

Heavy melting steel	$10.00 to $10.50
Low phosphorus steel	11.45 to 11.95
Old steel axles	14.20 to 14.70
Old iron axles	17.70 to 18.70
Mixed shafting	12.75 to 13.25
No. 1 wrought and soft steel	11.00 to 11.25
Wrought iron pipe	9.25 to 9.50
Skeleton (bundled)	7.75 to 8.00
Cotton ties	8.00 to 8.25
No. 2 light	4.50 to 5.00
Wrought turnings	5.75 to 6.00
Cast borings	5.00 to 5.50
Machinery cast	12.50 to 13.00
Malleable	11.00 to 11.50
Grate bars	6.00 to 6.50
Stove plate	8.50 to 9.00

St. Louis

ST. LOUIS, MO., September 25, 1911.

Pig Iron.—With an increased number of inquiries, almost wholly for immediate shipment, there is hope in some parts of the market, while others with few or no inquiries insist that there is nothing to be expected for some time. No. 2 Southern is quotable from $10 to $10.25, Birmingham basis, with some even holding for $10.50. Northern iron continues at $13 to $13.50, Ironton basis. The fact remains, however, that all business is being done on the hand-to-mouth order, and while there is no open lowering of quotations it is pretty well established that buyers have an opportunity to negotiate.

Coke.—With one sale of 20 carloads of 72-hr. foundry coke and about 150 tons of 48-hr. furnace coke, the coke market can be said to be as quiescent as the pig iron situation. Quotations show no change and practically all the business doing is on the spot basis, if new, or immediate delivery on contract specifications.

Finished Iron and Steel.—The movement in finished products is keeping up fairly well in the aggregate, but there are no especially large orders being placed. Such as are coming in are for immediate shipment and consumption, nothing going into stock apparently. Structural steel is keeping up about the same tonnage that has prevailed in recent weeks, all going forward quickly and for immediate use. Standard rails have been quiet except for the closing of an additional order by the Missouri Pacific for 1800 tons for use on the southern end of the Iron Mountain system. Lack of activity in the coal trade as well as in the lumber trade is keeping down the demand for light rails. Track fastenings are in fair request and firm in price. Agricultural implement and vehicle concerns are making no especial impression on the bar market. Plates are quiet. An order to the Mount Vernon Car Company for 500 cars from the Louisville & Nashville is expected to bring in a good order soon. Otherwise there is nothing indicating special life.

Old Material.—The scrap iron market is affected at present largely by the same conditions that seem to rule the pig iron and finished steel markets. In consequence there is practically nothing doing in any division of the business and dealers are simply waiting for something to turn up. No new lists have come out from the railroads. An incidental deal of the past week has been the purchase by Harry Benjamin, of the Harry Benjamin Equipment Company, of the yards and business of the Block-Pollak Iron Company, with which he was connected before organizing the company bearing his name. The quotations to-day show a decided revision as a result of the prevailing dullness. Dealers' prices, per gross ton, f.o.b. St. Louis, are as follows:

Old iron rails	$12.00 to $12.50
Old steel rails, rerolling	11.50 to 12.00
Old steel rails, less than 3 ft.	10.50 to 11.00
Relaying rails, standard section, subject to inspection	22.50 to 23.00
Old car wheels	12.00 to 12.50
Heavy melting steel scrap	10.50 to 11.00
Frogs, switches and guards cut apart	10.50 to 11.00

The following prices are per net ton:

Iron fish plates	$10.50 to $11.00
Iron car axles	18.00 to 18.50
Steel car axles	16.00 to 16.50
No. 1 railroad wrought	10.75 to 11.25
No. 2 railroad wrought	9.75 to 10.25
Railway springs	9.50 to 10.00
Locomotive tires, smooth	14.00 to 14.50
No. 1 dealers' forge	8.50 to 9.00
Mixed borings	5.50 to 6.00
No. 1 busheling	8.50 to 9.00
No. 1 boilers cut to sheets and rings	7.00 to 7.50
No. 1 cast scrap	8.50 to 9.00
Stove plate and light cast scrap	7.00 to 7.50
Railroad malleable	8.00 to 8.50
Agricultural malleable	7.00 to 7.50
Pipes and flues	7.50 to 8.00
Railroad sheet and tank scrap	7.00 to 7.50
Railroad grate bars	6.50 to 7.00
Machine shop turnings	6.75 to 7.25

New York

NEW YORK, September 27, 1911.

Pig Iron.—Inquiry shows a considerable falling off from last week. Demand comes up in spots and when this has been satisfied there is a lull. Of the 3000 tons under inquiry for Bridgeport it is understood that one-half was purchased. Deliveries run into November. Virginia furnaces are said to have secured a portion of this tonnage. A New Jersey foundry making furnace castings has closed for about 3000 tons, of which 2000 was taken by an Eastern Pennsylvania furnace. Another New Jersey buyer has taken 1000 tons and two lots of from 400 to 500 tons were placed, one in Brooklyn and one in New Jersey. In Brooklyn a pattern makers' strike has cut down the output of two or three foundries. A feature of the past two weeks with Buffalo and Eastern furnaces has been the urgency with which iron has been ordered forward by foundries on their contracts. In a few cases requests are reported for anticipation of October shipment. This condition is not attended, however, by any greater firmness in prices. In New England some low prices have been named, both by Virginia and Pennsylvania furnaces. Little inquiry has appeared for next year's shipment, and this week there is small interest apparently in pig iron for any delivery. We quote Northern iron as follows at tidewater: No. 1 foundry, $15.50 to $15.75; No. 2 X, $15 to $15.25; No. 2 plain, $14.75 to $15. Southern iron is quoted at $15.25 to 15.50 for No. 1 foundry and at $14.75 to $15 for No. 2.

Finished Iron and Steel.—An indication of the belief that present prevailing prices in finished lines are close to bottom is had in the request for bids by October 5 by the Central Railroad of New Jersey on two bridges aggregating 10,000 tons of material. The point is emphasized by the fact that the bridges are not wanted for at least a year. Each comprises a number of double track plate girder spans and one draw span; one is over the Passaic River and the other over the Hackensack River. It is generally believed that structural purchases have lately been made on the basis of 1.30c., Pittsburgh, and this price is given for plates, although one sale of 300 tons of plates has been made in this territory at less than 1.25c., Pittsburgh. Bar iron is moving in good volume, but prices, manufacturers take occasion to mention, are extremely low. The general contract for the Filene building, Boston, requiring 5000 tons, has been given to the Wells Brothers Company. Definite decision is expected within two weeks on the 1000 tons involved in the building for the Man-

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hattan Soap Company. The Hay Foundry & Iron Works is to fabricate the 200 tons for the Essex County National Bank building, Newark, and the McClintic-Marshall Construction Company has taken the 200-ton contract for the Hackensack school. The Pennsylvania Steel Company has 900 tons for approach work, including rails, for the Manhattan Bridge; L. F. Shoemaker & Co. have 200 tons for two bridges for the New York, New Haven & Hartford, and the Passaic Steel Company will roll for Ravitch Brothers 250 tons for a theater building on Delancey street, and 1000 tons for two apartment houses. The Seaman's Institute, Coenties slip, John Downey, general contractor, requiring originally 1500 tons of steel, is being refigured; the New York Central has asked for bids for a bridge at Oswego over the Barge Canal; bids for steel work for the 500-ton extension to the American Exchange National Bank will probably be asked in a few weeks, Marc Eidlitz & Son, general contractor, and a theater building has been projected in Washington, D. C. Quotations are now: Plain structural material, 1.46c. to 1.51c.; plates, 1.41c. to 1.46c.; steel bars, 1.31c. to 1.36c.; bar iron, 1.30c. to 1.35c., all New York. Plain material and plates from store, New York, 1.75c. to 1.85c.

Cast Iron Pipe.—The city of Providence, R. I., opened bids on Tuesday for 900 tons. No other public lettings of importance are announced in this territory. Inquiries from private buyers are fewer, doubtless as a result of the general feeling of disquiet in connection with the stock market. It is stated that some very low prices have been received by contractors who bid Tuesday on the 8900 tons of 40-in. pipe to be furnished to the New York Board of Water Supply. Carload lots of 6-in. are still quoted at $21 to $22 per net ton, New York.

Old Material.—Bad as the situation was last week, a still worse condition of affairs now exists. Dealers report that it is almost impossible to ship any kind of material on contracts that will be accepted. Consumers seem to have decided to reject everything. Under such circumstances the market is almost demoralized. Local dealers have sharply reduced their bids to railroads and other holders of scrap, and even then hesitate to purchase for fear that they may not be able to dispose of what they thus secure. At a time like this numerous rumors are current of steel plants and other consumers of scrap closing down in the near future for lack of business. Quotations are largely nominal, but the following represent the views of local dealers, per gross ton, New York and vicinity:

Old girder and T-rails for melting	$9.75 to $10.00
Heavy melting steel scrap	9.75 to 10.00
Relaying rails	20.00 to 21.00
Rerolling rails	11.50 to 12.00
Standard hammered iron car axles	21.00 to 21.50
Old steel car axles	15.50 to 16.00
No. 1 railroad wrought	11.75 to 12.00
Wrought iron track scrap	10.75 to 11.00
No. 1 yard wrought, long	10.50 to 11.00
No. 1 yard wrought, short	9.75 to 10.00
Light iron	4.00 to 4.50
Cast borings	5.00 to 5.50
Wrought turnings	5.50 to 6.00
Wrought pipe	9.50 to 10.00
Old car wheels	10.00 to 10.50
No. 1 heavy cast, broken up	10.00 to 10.50
Stove plate	8.00 to 8.50
Locomotive grate bars	8.00 to 8.50
Malleable cast	10.00 to 10.50

Metal Market

NEW YORK, September 27, 1911.

The Week's Prices

Cents Per Pound for Early Delivery.

	Copper, New York			Lead		Spelter	
Sept.	Lake.	Electrolytic.	Tin, New York.	New York.	St. Louis.	New York.	St. Louis.
21	12.60	12.37½	38.10	4.50	4.35	6.05	5.90
22	12.50	12.25	37.50	4.50	4.35	6.05	5.90
23	12.50	12.25	....	4.50	4.35	6.05	5.90
25	12.50	12.25	37.45	4.50	4.35	6.05	5.90
26	12.50	12.25	37.80	4.47½	4.32½	6.00	5.85
27	12.50	12.25	37.87½	4.47½	4.32½	6.00	5.85

Copper is neglected at lower prices. For the first time in many weeks lead is below 4.50c. in New York. Spelter has declined slightly. The pig tin market, which sagged during the week, recovered somewhat yesterday and to-day.

Copper.—Notwithstanding that some large dealers in copper have sold out their holdings solidly for October, and there is very little prompt copper to be had, the market has declined. This is due to the fact that consumers are showing no interest and the little spot copper that is offered is attracting very few bidders. Exports of copper have fallen off and so far this month only 20,531 tons have been sent abroad. The decline in exports is influencing the consumers' attitude. The London market holds firm, however, and has been steady for a week past. This morning spot copper was offered at £54 13s. 9d. and futures at £55 10s. To-day's London price for spot was only 5s. below the quotation of a week ago.

Pig Tin.—The chief interest in the pig tin situation this morning was in the Banca sale which took place to-day. The tin offered brought an unexpectedly good price, equivalent to 39.30c., New York, whereas spot tin could be obtained in this city to-day for 38.87½c. The stiff price paid for the Banca tin was due to the fact that certain London dealers had sold the sale short. Until yesterday the tin market here was dull and buyers adopted a waiting policy. It is probable that the high Banca price may influence some trading. The course of the market will bear watching within the next few days. If the American market continues firm a good buying movement may result, as consumers show a tendency to purchase at present prices. If it becomes topheavy, however, buyers claim that they can wait as they are supplied with tin for their immediate needs. The London market advanced slightly this morning, but New York dealers did not follow suit. There have been very heavy arrivals of tin this month which may tend to keep the price down. Up to date 5230 tons of tin have arrived here during September and there are 964 tons afloat. In London this morning spot tin was sold at £177 10s. and futures at £175.

Tin Plates.—Dealers who sell foreign tin plates in this country are getting very little business, as they cannot compete with American producers at the existing price of foreign plates, which is 13s. 7½d. at Swansea, Wales. A good amount of buying of tin plates for re-export is being done, but the domestic demand is quiet. The usual quotation is $3.84 for 100 lb. coke plates.

Lead.—Lead is down to 4.37½c., New York. Outside dealers are now taking business away from the leading interest, which continues to maintain its quotation at 4.50c. A great deal of price cutting is going on in the West, and the usual quotation is 4.32½c. in St. Louis, but this price has been shaded in some quarters.

Spelter.—Spelter has kept fairly steady all week. Stocks for immediate delivery are not very plentiful, but sellers seem anxious to dispose of futures. In some cases concessions are being freely made to induce purchases of November and December spelter. A reduction in the price of spot spelter was made yesterday when New York dealers began to quote 6c. and St. Louis sellers 5.85c.

Antimony.—Antimony continues to decline, and Hallett's is now down to 7.70c. Some heavy sales of Chinese and Hungarian grades have been induced by rather sharp price cutting. These grades are now quoted at from 7c. to 7.10c.

Old Metals.—The market is weak, but dealers' selling prices, New York, are nominally unchanged, as follows:

Copper, heavy cut and crucible	$11.75	to	$12.00
Copper, heavy and wire	11.37½	to	11.50
Copper, light and bottoms	10.50	to	10.75
Brass, heavy	8.00	to	8.25
Brass, light	6.75	to	7.00
Heavy machine composition	10.50	to	10.75
Composition turnings	8.50	to	8.75
Clean brass turnings	8.00	to	8.25
Lead, heavy	4.20	to	4.25
Lead, tea	3.95	to	4.00
Zinc, scrap	4.25	to	4.30

Chicago

SEPTEMBER 26.—Failure to support the price of tin resulted in a pronounced slump. Trade in other metals has been sluggish and prices are without change. We quote at Chicago: Casting copper, 12.62½c.; Lake, 12.87½c., in carloads, for prompt shipment; small lots, ¼c. to ⅜c. higher; pig tin, carloads, 38½c.; small lots, 41c.; lead, desilverized, 4.45c. to 4.50c. for 50-ton lots; corroding, 4.72½c. to 4.75c. for 50-ton lots; in carloads, 2½c. per 100 lb. higher; spelter, 5.95c. to 6c.; Cookson's antimony, 9¼c., and other grades, 8¼c. to 8¾c., in small lots; sheet zinc is $8, f.o.b. La Salle, in carloads of 600-lb. casks. On old metals we quote for less than carload

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lots: Copper wire, crucible shapes, 10¾c.; copper bottoms, 9½c.; copper clips, 10¼c.; red brass, 9½c.; yellow brass, 7½c.; lead pipe, 4c.; zinc, 4¼c.; pewter, No. 1, 26c.; tinfoil, 32c.; block tin pipe, 36c.

St. Louis

SEPTEMBER 25.—The metal market shows a weakening tendency, due to a falling off in demand except for immediate consumption. Lead to-day is quotable at 4.37½c.; spelter, 5.85c. bid and 5.90c. asked; tin, 37.97½c.; Lake copper, 12.85c.; electrolytic, 12.65c.; Cookson's antimony, 8.60c. In the Joplin mining district zinc blende the past week brought $48 per ton, top grade, the basis being $45 per ton for 60 per cent. ore. On some poorer grades the basis ranged down to $42 per ton. The top prices showed no variation from the preceding week, but the commoner grades were about $1 per ton weaker. Calamine brought $32 per ton for the top on a basis of $25 per ton for 40 per cent. ore, with poorer grades running down to $23 per ton. Lead ore was weaker at $58 to $60 per ton. Following are the prices for old metals: Light brass, 4c.; heavy brass and light copper, 8c.; heavy copper and copper wire, 9c.; zinc, 3c.; lead, 3.25c.; pewter, 20c.; tinfoil, 29c.; tea lead, 3c.

Iron and Industrial Stocks

Heavy Decline in Steel Stocks

NEW YORK, September 27, 1911.

The past week has been marked by furious selling of United States Steel stocks, which on one or two days came perilously near to a collapse. On Thursday no less than 572,100 shares and on Friday 717,000 shares of the common stock changed hands. The latter broke all previous records for a day's transactions in this stock. The preferred was likewise under severe pressure, but the transactions were on a much smaller scale with relation to the number of shares outstanding. The lowest price realized on the common stock was on Monday of this week, when 51⅝ was touched, but the lowest price on the preferred was reached on Friday at 103¼. The cause of this severe decline is referred to editorially. Other industrial stocks also suffered seriously, but not to the same extent. A marked rebound occurred on Tuesday. The range of prices on iron and industrial stocks from Wednesday of last week to Tuesday of this week was as follows:

Allis-Chalm., com...	6 - 6¼	Pressed Steel, com..	25 - 27½
Allis-Chalm., pref...	16½- 17½	Pressed Steel, pref..	91 - 94
Beth. Steel, com....	26 - 28	Railway Spring, com.	26½- 28½
Beth. Steel, pref....	54 - 58½	Railway Spring, pref.	94 - 98
Can. com.....	9¼- 10	Republic, com.....	21¾- 23
Can, pref.....	80½- 83⅛	Republic, pref.....	81⅜- 87⅛
Car & Fdry., com...	42½- 46¼	Sloss, com.....	34 - 36¼
Car & Fdry., pref.....115		Pipe, com.....	11 - 13
Steel Foundries....	25 - 28	Pipe, pref.....	40½- 45
Colorado Fuel.....	25 - 26⅞	U. S. Steel, com....	51⅝- 64
General Electric.....142 -149		U. S. Steel, pref....103¼-110¼	
Gr. N. Ore Cert...	43½- 45½	Westinghouse Elec..	58⅜- 61
Int. Harv., com....100⅛-102½		Am. Ship, com.....	50 - 54
Int. Harv., pref....115 -117¾		Chi. Pneu. Tool.....	39½- 43½
Int. Pump, com.....	27¾- 30	Cambria Steel.....	40⅞- 42¾
Int. Pump, pref.....	81	Lake Sup. Corp.....	21½- 23½
Locomotive, com....	33⅛- 34⅛	Warwick	10¼
Locomotive, pref....104½-105		Crucible Steel, com.	9 - 10¼
Lackawanna Steel	30	Crucible Steel, pref.	73 - 76⅜
Nat. En. & St., com.	14 - 15½	Harb. Wk. Ref., pref.....	99
Nat. En. & St., pref.....	92¼		

Dividends Declared

The Otis Elevator Company, regular quarterly, 1½ per cent. on the preferred stock and 1 per cent. on the common, payable October 16.

The McCrum-Howell Company, regular quarterly, ¾ of 1 per cent. on the common stock, payable October 1.

The Chicago Railway Equipment Company, regular quarterly, 1¾ per cent., payable October 2.

The Union Typewriter Company, regular semi-annual, 3½ per cent. on the first and 4 per cent. on the second preferred stock, payable September 30.

The American Seeding Machine Company, regular quarterly, 1½ per cent. on the preferred and 1 per cent. on the common stock, payable October 15.

The Reece Buttonhole Sewing Machine Company, International Buttonhole Sewing Machine Company and Reece Folding Machine Company, regular quarterly dividends of 2 per cent., 1 per cent. and 1 per cent., respectively, payable October 16.

The American Brake Shoe & Foundry Company, regular quarterly, 1¾ per cent. on the common and preferred stocks, payable September 30.

The Sloss-Sheffield Steel & Iron Company, regular quarterly, 1¼ per cent. on the preferred stock, payable October 2.

Lignites and the Use of Producer Gas in Texas

Bulletin No. 169 of the University of Texas deals with the composition of Texas coals and lignites and the use of producer gas in Texas. It is a pamphlet of 134 pages. Chapters 1 and 2, treating of coal and lignite respectively, were prepared by Dr. William B. Phillips, director of the Bureau of Economic Geology and Technology, and by S. H. Worrell, chief of the testing laboratory. Chapter 3 on "The Use of Producer Gas in Texas" is by Drury McNeill Phillips. There has been a marked increase in Texas in the past few years in the use of lignite in gas producers, the gas thus made going to gas engines for the generation of power. Lignite is also used in gas producers for fuel to be empolyed in the burning of lime, etc. The lignite fields in Texas are estimated to be in excess of 60,000 square miles. The original supply is estimated in the pamphlet to have been beyond 30,000,000,000 tons, varying in fixed carbon content from a few per cent. to nearly 45 per cent, with volatile and combustible matter ranging from 30 to 76 per cent. The beds run to 15 ft. and more in thickness and are found at various depths to as much as 400 and 600 ft.

The total producer horsepower operating on lignite in the State is put at 13,000, while the total engine horsepower is 12,270. The plants are scattered over a wide area so that in many cases the by-products such as tar and ammoniacal liquor would have to be transported over considerable distances to a central plant for treatment. At present the saving of by-products is possible only at the large plants. The average value of the lignite mined in the State in 1910 was 96 cents a ton at the mine and the production was 979,232 tons, the largest in the history of the industry. Many valuable data are given concerning practice at individual plants making producer gas from lignite, the subject matter being of interest not only to manufacturers of gas producers but to users of gas for power. The entire pamphlet covers the ground ably and is a noteworthy contribution to the fuel literature of Texas.

A New Industry for South Africa.—Cartwright & Eaton, Ltd., Johannesburg, South Africa, have commenced the erection of an iron and steel works near Benoni for the purpose of working up iron and steel scrap into products to meet the local requirements. Rolling mills and other machinery of the latest type are being shipped from England by Thomas Perry & Sons, Francis Berry & Son and others. Mitchell Cotts & Co., 4 London Wall Buildings, are their London agents. Skilled men are being engaged in England to run the plant. J. K. Eaton, of the above named company, has just returned to Johannesburg from a tour in Great Britain. In the meantime options have been secured on large quantities of scrap.

The Inventors' International Exposition has been organized for the purpose of holding a convention of inventors and manufacturers in Buffalo, N. Y., December 5, 6, 7, 8 and 9. It will be held in the great Convention Hall, which has been furnished free of cost by the city of Buffalo for that purpose. It is the intention to exhibit models of all kinds, blue prints and designs. Exhibitors are urged to attend and demonstrate in person, but experienced men will be provided by the management to demonstrate models and explain blue prints and designs for inventors who are unable to attend. The programme will include lectures and addresses by prominent patent attorneys, manufacturers and investors. B. B. Pannett, Mutual Life Building, Buffalo, is general manager and secretary.

The North Wales Machine Company, North Wales, Pa., is building a specially constructed furnace for hardening small steel parts in large numbers. Recently it designed and built a furnace for hardening thin discs perfectly flat, which has a capacity of 25,000 hardened pieces per day.

Personal

Horace P. Tobey, who for more than 40 years has been treasurer of the Tremont Nail Company, Wareham, Mass., resigned that position September 15. Proper attention to his personal affairs makes it impracticable for him to continue to give the time necessary for the performance of the duties of that office. His successor is William A. Leonard, who has for nearly 20 years been superintendent of the works of the company. Mr. Tobey retains, as stockholder and president, a close connection with the company with which he has so long been identified.

J. S. Cothran, Charlotte, N. C., has been appointed sales agent of the Terry Steam Turbine Company for North and South Carolina.

C. R. Vincent, for many years president of the Ball & Wood Company, has assumed the management of the Monel metal department of the Ruggles-Coles Engineering Company, 50 Church street, New York, general agent for the Bayonne Casting Company, Bayonne, N. J., maker of Monel metal castings. Sheets, rods, wire and screens of the same metal will also be handled by the company with which Mr. Vincent is associated.

H. E. Higgins, who has been treasurer and general manager of the Cleveland Steel Company, Cleveland, Ohio, for many years, will sever his connection with that company October 1, having tendered his resignation some time ago. He will be succeeded by J. C. Jones, at present purchasing and sales agent, who has been connected with the company 14 years.

T. S. Crane, of Pilling & Crane, Philadelphia, Pa., returned September 19 from a month's vacation abroad.

Albert E. Newton, secretary of the Prentice Bros. Company, Worcester, Mass., has returned from a two months' European trip.

Albert Ladd Colby, New York, consulting engineer, specializing in by-product coke ovens, sailed last week for a six weeks' absence in Germany.

Albert Broden, manager of the blast furnace department of the Reading Iron Company, Reading, Pa., has returned from a trip of several months abroad, a large portion of the time having been spent in Sweden.

Robert E. Brooke, of the E. & G. Brooke Iron Company, Birdsboro, Pa., has returned from a short trip abroad.

W. J. Gilmore, formerly with the H. C. Frick Coke Company and the Sunshine Coal & Coke Company, is now vice-president and general manager of the Producers' Coke Company, sales agent for coal and for foundry and furnace coke, with office in the First National Bank Building, Uniontown, Pa.

B. A. Prince, Worcester, Mass., has been elected director of the new industrial school at Westfield, Mass. Mr. Prince is a graduate of the Worcester Polytechnic Institute, class of 1898.

Excursion Features of Mining Engineers' San Francisco Meeting

Plans are now completed for the itinerary across the country to the San Francisco meeting of the American Institute of Mining Engineers, and the personnel of the party which is to make the extended journey to Japan immediately after the meeting is now obtainable. A special train de luxe leaves Chicago, September 30, at 8 p. m. The Japan party will leave San Francisco October 17 on the steamship Manchuria, and the trip allows for 18 days in Japan. The party plans to leave Yokohama for San Francisco on the steamship Siberia November 21, arriving in San Francisco December 7. Among those who will join in the Japan excursion are the following:

Prof. J. W. Richards, Lehigh University, South Bethlehem, Pa.; Dr. H. S. Drinker, president Lehigh University; Dr. Joseph Struthers, secretary American Institute of Mining Engineers; F. C. Smink, president Reading Iron Company; C. Le Boutillier, chemist, Taylor Iron & Steel Company; W. S. Morse, American Smelting & Refining Company; David Williams, New York; Eli Whitney, New Haven, Conn.; Dr. R. W. Raymond, secretary emeritus American Institute of Mining Engineers; Maj. William H. Wiley, John Wiley & Sons, New York; Capt. Robert W. Hunt, Chicago; W. L. Saunders, president Ingersoll-Rand Company; F. H. Daniels, chief engineer American Steel & Wire Company; W. V. Morse, American Smelting & Refining Company; D. W. Brenton, past president American Institute of Mining Engineers; W. B. Manny, president North American Copper Company; W. L. Clark, assistant general manager United Verde Copper Company; Edwin Thomas, Thomas Iron Company, Catasauqua, Pa.; E. W. Parker, chief statistician United States Geological Survey.

Obituary

JAMES DWYER, vice-president Peninsular Stove Company, Detroit, Mich., died September 17, aged 60 years. He was one of the earliest manufacturers of stoves in Detroit. His brother Jeremiah, now and for many years president of the Michigan Stove Company, established the stove industry in that city in 1861, when the Detroit Stove Works was founded, of which he was manager. Two years afterward Jeremiah removed from Detroit and James stepped into his place, resigning that position in 1879 to start the Peninsular Stove Company. He was born in Springwells, now a part of the city of Detroit. Left an orphan at an early age, he managed to make a living and attend the common schools. Removing to New York he served a four years' apprenticeship as machinist. His own experience made him exceedingly sympathetic with orphans and apprentices. His charities were extensive, but conducted with the desire to escape public notice as much as possible. He leaves three daughters and three sons. One son, James M., is treasurer, and another son, Edwin L., is purchasing agent of the Peninsular Stove Company.

JOHN B. RHOADS, of John E. Rhoads & Sons, leather belting manufacturers, Philadelphia, Pa., died at his home in Moorestown, N. J., September 20, aged 46 years. He had been identified with the business for 29 years and had been secretary of the Philadelphia Leather Belting Association for a number of years. He leaves a widow and three children.

C. FRANKLIN WEILER, secretary and treasurer of the Cortland Corundum Wheel Company, Cortland, N. Y., died at Saranac Lake September 17 of tuberculosis, after an illness of about two years, aged 39 years. Mr. Weiler became associated with the company at its organization in March, 1902, and by close attention to its growing needs gradually worked his way up until elected to the position he held at his death.

The A. P. Smith Mfg. Company, East Orange, N. J., has gone into the manufacture of two new specialties. One of these is a water motor for operating large valves, by the use of which water superintendents are enabled to periodically inspect their large and important valves and thereby be sure that when the occasion arises for them to be opened or closed they are in operative condition. In the past it has generally happened that on the occasion of a break in a main the men sent to close the valves have operated them in the wrong manner, breaking the stem, thus causing much damage, on account of the valves not having been operated for a long time. With this motor all such danger is eliminated, the valves being kept in perfect condition as to their operating mechanism. The other new product is a meter tester, by means of which it is possible to test all meters as to efficiency and accuracy when received from the factory and also to test meters which the consumer complains of as not being accurate. Annoyance is thus saved while revenue may be obtained by testing these meters for the consumer, as in nine cases out of ten it will be found that the meter registers accurately.

Robert Gilchrist & Co., Third and Trumbull streets, Elizabethport, N. J., importers and manufacturers of ground ferromanganese, ferrosilicon, manganese dioxide and carbon, are moving their plant into a new building situated on the water front. As their business runs largely into tonnage, the advantages of water front and sidings are not to be overlooked. In equipping this plant the company is gradually increasing its capacity and is putting in new machinery. The capacity of the old plant will be more than trebled. Special units will be installed for grinding the chief products. The firm reports that the demand for its products has been steadily growing since it started in business, the increase being noticeable from month to month.

The Wheeler Condenser & Engineering Company, 149 Broadway, New York, is building some improved types of condensers, and shortly expects to bring out a new design of cooling tower and other apparatus. The company reports that its establishment has been running night and day for nearly two years and business conditions are quite satisfactory.

Iron and Steel Electrical Engineers

Fifth Annual Convention

The special problems of electricity in the steel plant and the activities of works' electrical engineers in relation to safety provisions were given special attention in the early sessions of the meeting this week in New York of the Association of Iron and Steel Electrical Engineers. The meeting, which is the fifth annual convention, was opened at the Imperial Hotel on Monday morning and provided for seven professional sessions besides business sessions, a number of excursions, an illustrated lecture on safety on Tuesday evening by R. J. Young, of the Illinois Steel Company, and a dinner on Wednesday evening. The concluding excursions are scheduled for Saturday.

The first work of importance taken up by the convention was the reception and discussion of the report of its Safety Committee, B. R. Shover, B. W. Gibson and H. Hughart Laughlin. The report took the form of a printed pamphlet of 39 pages, compiling verbatim the rules of such of the members as had supplied the committee with copies of individual shop regulations. The compilation was made to attract the contribution of other rules and also to develop discussion regarding detail provisions, all for the guidance of next year's safety committee, which may be expected to draw up a uniform set of rules or a set of as wide application as possible. The rules in the present report are grouped as follows: Rules for cranemen; general rules relative to employees of electrical department; miscellaneous; standard rules. It is possible that the report may be had by applying to the secretary of the association, James Farrington, La Belle Iron Works, Steubenville, Ohio.

Besides the safety committee report and the illustrated lecture on safety, F. W. Woodhull, of the Lukens Iron & Steel Company, described at the Tuesday morning session by means of lantern slides numerous safety devices used in the iron and steel industry. On Tuesday afternoon papers were read by M. A. Whiting, General Electric Company, "New Developments in Control Apparatus for Steel Mills," describing a series contactor designed to provide emergency dynamic braking in the case of failure of the line voltage; by Arthur C. Eastwood, Electric Controller & Mfg. Company, "Automatic Motor Control," describing a magnetically operated switch designed to act not only as a switch for closing a circuit and holding it closed, but also as a current relay limit, refusing to close until the current is reduced to the so-called critical value; by H. C. Soule, transformer engineer, Westinghouse Electric & Mfg. Company, on "Transformers for Steel Mill Service," giving details of construction and of care and operation of transformers, and by George W. Richardson, American Bridge Company, explaining the successful application of one of his own double armature motors to a planer, securing desired acceleration of planer speed, low peak loads and slow armature speed, the last point regarded as important with a machine periodically reversing like a planer.

The papers scheduled for the later sessions cover in part cranes, motors, an electrically driven pumping station and shop illumination, the last subject for Friday afternoon.

Among those present were the following, with the total attendance at this writing numbering 115:

O. R. Jones, Youngstown Sheet & Tube Company, Youngstown, Ohio.
D. J. Jones, Republic Iron & Steel Company, Youngstown, Ohio.
G. H. McFeaters, Lorain Steel Company, Johnstown, Pa.
F. A. Wiley, Wisconsin Steel Company, South Chicago.
H. A. Cox, American Steel & Wire Company, Donora, Pa.
C. E. Miller, Clairton Steel Company, Clairton, Pa.
E. W. Yearsley, Philadelphia.
C. C. Hunsberger, American Bridge Company, Philadelphia.
V. I. Brinker, American Sheet & Tin Plate Company, Vandergrift, Pa.
E. H. Wentz, National Tube Company, Lorain, Ohio.
A. B. Bartholomew, American Steel & Wire Company, Donora, Pa.
F. W. McKee, Jones & Laughlin Steel Company, Woodlawn, Pa.
Wm. O. Oschmann, Oliver Iron & Steel Company, Pittsburgh.
B. F. Coombe, Carnegie Steel Company, Mingo Junction, Ohio.
John Cooper, Carnegie Steel Company, Bellaire, Ohio.
R. B. Davenport, Carnegie Steel Company, New Castle, Pa.
E. Friedlaender, Edgar Thomson Works of Carnegie Steel Company.
James Farrington, La Belle Iron Works, Steubenville, Ohio.
Fred. H. Woodhull, Lukens Iron & Steel Company, Coatesville, Pa.
B. G. Beck, American Sheet & Tin Plate Company, Gary, Ind.
H. A. Lewis, Alan Wood Iron & Steel Company, Conshohocken.
W. E. Watters, National Malleable Casting Company, Melrose Park, Ill.
H. B. Smith, Illinois Steel Company, Joilet, Ill.
C. T. Healy, American Steel & Wire Company, Cleveland.
A. C. Cook, Carnegie Steel Company, Youngstown, Ohio.
R. J. Nicholson, Republic Iron & Steel Company, Youngstown, Ohio.
A. R. Foster, Republic Iron & Steel Company, Youngstown, Ohio.
L. R. Palmer, Jones & Laughlin Steel Company, Pittsburgh.
L. R. Rankin, Carnegie Steel Company, Sharon, Pa.
George W. Richardson, American Bridge Company, Philadelphia.
D. R. Knapp, Eastern Steel Company, Pottsville, Pa.
B. R. Shover, Carnegie Steel Company, Youngstown, Ohio.
S. Henderson, Central Furnace, American Steel & Wire Company, Cleveland.
W. F. Detwiler, Allegheny Steel Company, Brackenridge, Pa.
W. Greenwood, Carnegie Steel Company, Youngstown, Ohio.
J. D. Lindstrom, Shelby Steel Tube Company, Ellwood City.
W. T. Snyder, National Tube Company, McKeesport, Pa.
F. D. Egan, Pittsburgh Crucible Steel Company, Pittsburgh.
Edw. C. Smith, Harrisburg Pipe & Pipe Bending Company, Harrisburg, Pa.
R. J. Young, Illinois Steel Company, South Chicago.
John C. Reed, Pennsylvania Steel Company, Steelton, Pa.
D. M. Petty, Bethlehem Steel Company, South Bethlehem, Pa.
A. J. Woodworth, Maryland Steel Company, Sparrows Point, Md.
Clark S. Lankton, Seneca Iron & Steel Company, Buffalo.
T. E. Tynes, Lackawanna Steel Company, Buffalo.
Charles A. Kafer, Bethlehem Steel Company, South Bethlehem, Pa.
H. H. Laughlin, Jones & Laughlin Steel Company, Pittsburgh.

The American Manufacturers' Export Association

The second annual convention of the American Manufacturers' Export Association, which comprises in its membership about 300 of the leading exporters of the country, was held on Monday and Tuesday of this week in the Hotel Astor, New York. In connection with the convention and indorsed by the association an exposition was held at the hotel by the United States Marine Association, which plans to send out next spring two vessels of its own of 7000 and 10,000 tons, laden with samples of American manufactures, for exhibition and sale in all the chief ports of Central and South America.

At the sessions of the convention W. B. Campbell, of the Perkins-Campbell Company, Cincinnati, presided. A. H. Baldwin, chief of the Bureau of Manufactures of the Department of Commerce and Labor, told the members what the Government is doing to help them in their export work. A. J. Wolfe, manager of the Russian-American Messenger, a paper devoted to fostering trade between Russia and this country, declared that owing to the present dependence of American manufacturers on German agents in Russia they were being discriminated against in favor of German competitors. The effect of drawback of duties on American export trade was explained by Leonard Hall Jerome.

William Harris Douglas, for 40 years in the export and commission business, urged the restoration of an American merchant marine. He declared that, in addition to freight charges, 30 per cent. of American trade is being lost through the failure to cary American goods in American ships. From Edward A. Keith, of the George B. Keith Company, who recently returned from a trip round the world, the convention heard a description of the progress American manufactures were making in various parts of the world. Reciprocity treaties with the countries of Central and South America were urged at the second day's session by President Campbell. At the same time the entire trade policy heretofore adopted by manufacturers of this country toward South American tradesmen was raked vigorously over the coals by Senor J. P. Santa Marina, a trade expert from the Argentine Republic, who has been studying trade conditions between the two countries for the last 12 years. His criticism of the rude and negligent methods of American manufacturers toward his countrymen came as a distinct surprise to the convention.

A dinner on Tuesday evening wound up the proceedings. Addresses were made by Congressman William C. Redfield, John Ball Osborne, Chief of the Bureau of Foreign Relations of the Department of State; John Candler Cobb, president of the National Tariff Commission Association; Robert P. Skinner, American Consul General at Hamburg; and Prof. John L. Stewart, head of the Department of Business Administration at Lehigh University.

Lockwood, Greene & Co., architects and engineers for industrial plants, 93 Federal street, Boston, have established a Chicago office in the First National Bank Building, Chicago, which will be under the managership of Harold V. Coes, until recently mechanical engineer for the Liquid Carbonic Company.

Pittsburgh and Vicinity Business Notes

The United Engineering & Foundry Company, Pittsburgh, has received orders for a 600-ton forging press from the A. P. Witteman Company, Philadelphia, Pa.; a 1000-ton press to be installed in the new plant of the American Bridge Company at Gary, Ind., and a 150-ton forging press for the Cleveland Pressed Steel Company, Cleveland, Ohio.

The General Refractories Company, Pittsburgh, manufacturer of fire brick, is enlarging its W. H. Wynn works at West Decatur, Clearfield County, Pa., proposing to make its daily output 70,000 brick. The company is also enlarging its Blair silica brick works at Sproul, Blair County, Pa., the improvements to be finished about November 1, when this works will have a capacity of 75,000 brick daily. The capacity of its Olive Hill works at Olive Hill, Ky., is being increased to 70,000 brick daily. The erection of a new fire brick works has been begun by the company at E. K. Junction, Ky.

The Balbrook Company, Machesney Building, Pittsburgh, agent for the Moorhead Mfg. Company, Detroit, Mich., recently installed Moorhead steam traps in the W. J. Rainey Coal Company's new power plant at Mitchell Station, Pa.; the Wheeling Steel & Iron Company's works at Benwood, W. Va., and the Saxonwald greenhouse at Castle Shannon, Pa.

The S. Severance Mfg. Company, maker of spikes and rivets, Glassport, Pa., has elected F. W. Severance president and E. F. Conley secretary and treasurer. President Severance reports that the company has been extremely busy for the last two months, rushed to capacity, and now has sufficient business booked to run full for at least two months. While prices are low, conditions in general are as satisfactory as could be expected.

The property of the West Virginia Bridge & Construction Company will be offered at receivers' sale October 7 at the Ohio County Court House, Wheeling. The property includes two tracts of land just outside of Wheeling, a plant with switching connections, machinery, erecting tools, etc. Charles E. Woods and J. B. Handlan are the receivers.

The Pittsburgh office of the Oil City Boiler Works, House Building, Pittsburgh, has sold a 225-hp. Geary water-tube boiler to the Universal Rolling Mill Company, Bridgeville, Pa.

The Southern Connellsville Coke Company, Uniontown, Pa., recently completed 64 new ovens at Cheat Haven, Pa., on the Baltimore & Ohio Railroad, and the new plant is now producing coal and coke. S. A. Carson is general manager of the company, with office in the First National Bank Building, Uniontown, Pa.

Joseph G. Armstrong, director of public works, Oliver Building, Pittsburgh, is asking for proposals for shop and mill inspection of the structural steel to be used in the construction of the Point Bridge across the Allegheny River, for which the general contract was given to the American Bridge Company.

Charles Y. Knight, mechanical engineer, Coventry, England, delivered an address at a special meeting of the Engineers' Society of Western Pennsylvania on the evening of September 27, on "Gas Motors in Automobiles with Special Reference to Valve Gear." Mr. Knight is the inventor of the Knight motor.

The sheet mills of the Whitaker Iron Company, Wheeling, W. Va., have been closed down and will probably be idle for some time. Most of the product of sheets made in this plant is used by the Wheeling Corrugating Company, an identified interest.

The New York Shipbuilding Company, Camden, N. J., launched successfully on September 23 the battleship Moreno, building for the Argentine Republic. This vessel is a sister ship to the Rivadavia, launched recently from the yards of the Fore River Shipbuilding Company, Quincy, Mass. Each ship is 595 ft. long, 98 ft. beam, and has a displacement of 27,600 tons.

The M. Rumely Company, La Porte, Ind., has for a considerable period been shipping a number of trainloads each month of its Oil Pull plow engines and threshing machines for its Canadian trade, each trainload consisting of 40 to 50 cars and with often two machines on a car.

The W. S. Tyler Company, Cleveland, Ohio, maker of iron and bronze ornamental work, wire screen, etc., has purchased a portion of the plant of the Webster Mfg. Company in Chicago. The purchase includes a large 5-story building, a machine shop and considerable land. The Tyler Company has as yet made no plans for the operation of its new acquisition. Although it has largely increased the capacity of its Cleveland plant in the past few years, it finds that more room is needed. While it has additional building room, the building of extensions at the present time would be interfered with by the track elevation of the Pennsylvania Railroad which adjoins the plant, work on which has just been started. The Webster Mfg. Company, maker of metal products, has a large plant in Tiffin, Ohio, where it will probably concentrate its interests.

The Association of Edison Purchasing Agents held its annual meeting at the Monmouth Hotel, Spring Lake, N. J., September 21, at which the following officers were elected for the ensuing year: President, J. W. Brennan, Detroit Edison Company; first vice-president, W. H. Francis, Boston Edison Company; second vice-president, J. B. Eaton, Rochester Electric Light Company; treasurer, Andrew Banks, Jr., Consolidated Electric Light & Power Company, Baltimore; secretary, H. F. Frasse, Brooklyn Edison Company; stock controller, E. H. Shufro, Union Electric Light Company, St. Louis, Mo.

The number of idle freight cars in the United States and Canada on September 13, as reported by the American Railway Association, was 64,283, a reduction of 20,258 in the preceding two weeks. On September 14, 1910, the total surplus was 47,076.

The M. Mitshkun Company has purchased the old Blue Line Car Works, which occupy about eight acres of land, with over a mile of railroad tracks under cover. The property is bounded by Dix and Waterman avenues and three trunk lines—the Michigan Central, Wabash and Lake Shore & Michigan Southern. The shops are fully equipped with the most approved machinery to build and repair all kinds of freight cars, either of wood or steel construction. Employment will be given to several hundred men.

A special meeting of the Cleveland Engineering Society, Cleveland, Ohio, was held September 26 to listen to a paper on "Smoke Prevention" by Paul P. Bird, of the Commonwealth Edison Company, Chicago, formerly chief smoke inspector of Chicago. This society has recently adopted the policy of taking an interest in civic matters, especially those of an engineering character. Owing to agitation in behalf of smoke prevention, Mr. Bird's paper was especially interesting.

The Toledo Bridge & Crane Company, Toledo, Ohio, announces the appointment of E. T. & F. E. Mathewson, Real Estate Trust Building, Philadelphia, Pa., as its representatives for that city and vicinity, effective October 1.

The Jones Mfg. Company, Youngstown, Ohio, patentee and manufacturer of the Jones oil filters, is considering the question of securing a site in some growing community and erecting a new plant thereon for the manufacture of sheet metal specialties or converting some suitable old building to its needs.

The Commonwealth Title, Trust & Insurance Company, Philadelphia, Pa., sold as trustee, on September 21, under a deed of trust, given by the Hazelton Sheet Steel Company and later assumed by the Union Sheet & Tin Plate Company, the plant of that company at Hazelton, Pa. The plant consists of two main mill buildings, four hot mills, one cold mill, engines, furnaces, power plant, machinery and general equipment. The property was bought in by the bondholders.

The Brylgon Steel Casting Company, New Castle, Del., has about completed additions to its plant, consisting of a new shop 20 x 60 ft., a new laboratory, and an extension of 20 x 26 ft. to the pattern shop. The installation of an additional 200-hp. Coatesville boiler and stack, with several new machine tools, will complete the improvements and additions for the present. Besides the usual carbon steel castings, the company manufactures various alloy castings to meet the special requirements of its customers.

The Steel Corporation's Value

Vast Growth of Assets

The heavy decline in the securities of the United States Steel Corporation last week because of a growing belief that it must dissolve voluntarily or face a suit brought by the Department of Justice has naturally caused much uneasiness among those who hold such securities. It may be said, notwithstanding the remarkable deliverance of Attorney General Wickersham, that the trade does not share in his view that the Steel Corporation must follow in the footsteps of the Standard Oil Company and resolve itself into its original parts. In the iron trade there is no such antagonism to the Steel Corporation as has always existed among oil producers and refiners with regard to the Standard Oil Company. If the Department of Justice is confident that the Steel Corporation exists in violation of the Sherman anti-trust act and manifests that confidence in a suit for dissolution the trade will be greatly surprised if the corporation is not able to make a good defense. In view of what has happened in the stock market, however, and of apprehensions now prevailing with regard to the status of the corporation's securities, the following article from the New York Times is of interest:

"Although the possibility that the United States Steel Corporation might have to dissolve is not a new idea by any means, it has never been brought home to stockholders as strongly as in recent weeks that the disruption of the organization might mean a distribution of assets representing potential loss.

Seeking Worth of Stocks

"The corporation during the past decade has been piling up assets in the shape of accretions of value in ore lands, new plants and other tangible results of the vast sums spent out of earnings, and that the properties are immensely more valuable today than at the time of organization has been generally conceded.

"For the purpose of putting a liquidation value on the assets and figuring out the equities behind the common and preferred shares, however, little positive information was obtained by stockholders because of the wide differences of opinion about the values of the original plant and the extent to which earnings put back into the property may be actually counted as additions to worth. Another drawback, of course, was the problem of what would become of profits should the integral parts of the corporation, which has been the chief stabilizer of the erratic steel trade for the past decade, be turned loose to fight each other.

Bureau of Corporation's Appraisal

"The report of the Bureau of Corporations of its investigation of the 'Steel Trust' made public last July, after an investigation extending over several years, asserted that the tangible property representing the $1,402,000,000 of capitalization at the time of organization was worth only $682,000,000. By a persistent reinvestment of earnings, the report concedes, however, much of the water in the original combination has been squeezed out, and the present valuation is placed by Commissioner Herbert Knox Smith's report at $1,187,000,000, as against $1,486,000,000 outstanding securities, an increase of only about $66,000,000 in capitalization, against $487,000,000 increase in valuation which has taken place under Judge Gary's management. To be exact, the grand total of securities outstanding at present is $1,486,001,553, and these consist of $465,189,500 United States Steel bonds, $131,130,661 subsidiary company bonds and $3,097,792 purchase money obligations, a total of $599,417,953 in obligations ahead of the stock. On Commissioner Smith's valuation this would leave an equity of $587,582,047, consisting of actual property against which is outstanding a total stock capitalization of $868,583,600. The common stock would therefore have behind it, supposing that the underlying obligations and the preferred stock were paid off at par, a valuation of $267,300,000, or something over $52 a share.

Estimates Differ Widely

"The valuation put on the property by the commissioner is, of course, not conceded, and private estimates of the equities in the corporation's properties run to far greater amounts, though some are less. One estimate of what has been accomplished since organization in the way of increasing the tangible property has been made by W. E. Hazen of the Wall Street Journal, with the tacit approval of the officials of the corporation. It figures $335,170,521 as having been actually added to assets through the accumulation of surplus, the payment of capital obligations and construction from net income, and appropriations to cover capital expenditures. In addition to this is an increase in 'proved' ore holdings, which at $1 a ton aggregates $350,000,000. This grand total of $685,170,521 added to assets since 1901 takes no account of $265,639,000 put into depreciation and sinking funds, which if tagged on would make a total of $1,216,809,521 accruing to the property since organization. Leaving out of consideration the depreciation, sinking fund, and repair expenditures, and adding the increase of $685,170,521 in assets and ore values to the $682,000,000 valuation which the government concedes to have been the worth of the properties at the time of organization, there would appear a present valuation of $1,367,170,521, which, after settling obligations, would leave an equity of $767,752,568 for both classes of stock. The retirement of the preferred at par would leave $407,471,468, or about $80 a share for the common stock.

"Judge Gary, according to current Wall Street stories, has himself figured assets behind the common stock which give it a valuation of $110 a share, but he has never, so far as is known, made any public statement of the equity represented.

Gates on Corporation's Value

"During the Stanley investigation many of the corporation's bitterest enemies had their day in court, and some far from encouraging views were expressed of the values behind the securities. The late J. W. Gates, in giving his testimony in Washington, spoke of the second mortgage bonds of the United States Steel Corporation as 'merely a promise to pay.' It is worth noting, however, that he made this statement while on the subject of the relative value of the stock of the Tennessee Coal, Iron & Railroad Company and the United States Steel bonds for which the shares of the Tennessee Company had been exchanged during the panic of 1907. He said in reply to the question, 'What is the tangible value behind these bonds and this common and preferred stock?' put by Chairman Stanley: 'Oh, anywhere from $500,000,000 to $1,000,000,000.'

"When asked if he thought there was any tangible value behind the common stock, his reply was 'I decline to answer.' Mr. Gates's attitude toward United States Steel is, however, well known not to have been of the friendliest.

"In its latest balance sheet, that of December 31, 1910, the corporation carries its properties at a valuation of $1,547,884,381. Deduction of balances to the credit of various funds leaves $1,430,212,860, and the addition of current assets of $288,742,419, sinking and reserve fund assets of $16,067,905, outside investments of $2,369,394, and deferred charges balances of $8,331,704, brings the total of assets up to $1,745,724,284 against which there are total capital and current liabilities of $1,521,488,398.

Trade Would Lose Balance Wheel

"One of the vital questions before stockholders, and undoubtedly a consideration of the first moment in the decline which took place in the shares last week, is what will be the course of the steel trade should the corporation be forced to dissolve and the various subsidiaries forced into competition by the disruption of centralized control. The course of prices in the steel trade before and since the organization of the corporation is evidence in itself of the stabilizing influence of the consolidation in one company of about half of the country's capacity. If dissolution occurs and the trade loses this balance wheel, it is generally conceded that there will be drastic changes in the trade, and a situation evolved which would be the more acute at this time of halting business because of the large increase in productive capacity of the country. It is generally estimated that there would result from dissolution about 17 different corporations, provided the railroad, ore, and other affiliated properties are grouped separately.

The Subsidiaries

"There are 13 manufacturing concerns alone. These are Carnegie Steel Company, Illinois Steel Company, Indiana Steel Company, Illinois Steel Warehouse Company, Lorain Steel Company, American Steel & Wire Company,

National Tube Company, American Sheet & Tin Plate Company, American Bridge Company, Union Steel Company, Clairton Steel Company, Tennessee Coal, Iron & Railroad Company, and Universal Portland Cement Company. Most of these manufacturing subsidiaries are consolidations in themselves, and if they, too, are forced to split up as was the case with the Standard Oil subsidiary, the National Transit Company, there would be still greater multiplicity of the separate corporations. If the railroads and ore properties are not permitted to consolidate as separate entities the confusion would, of course, be still greater.

Enormous Total Earnings

"From the point of view of earning power the showing of the United States Steel Corporation for the past decade makes a strong argument for the higher valuations put upon the stock capital. Up to the close of the last fiscal year, the corporation had earned since organization $5,813,243,724 gross and its net earnings were $1,202,214,515. The surplus for dividends on the common stock has averaged 9 per cent. a year since the organization in 1901, and from the point of view of the preferred stockholder it is interesting to note that the balance after charges, before deducting dividends, has amounted to an average of over 20 per cent. per annum on the preferred stock. Capacity has been increased 80 per cent. since 1901.

Loss by Disruption

"From the stockholders' side of the question there is no doubt that the disruption of the company would mean heavy losses in profits. This is conceded by the Bureau of Corporations in its report, which makes this interesting comment:

> It is probably true that the various properties acquired by the Steel Corporation, taken together with the organization of this company as a going concern, do have a value in excess of the sum of their values as separate entities. The co-ordination and integration made possible by the combination of such properties under a single control undoubtedly tend to reduce costs, either through economies or through the removal of the necessity of paying profits to others.
>
> Further, in so far as the concentration of the industry under the control of a single concern gives to it a monopolistic power over prices and production, this may result in an increase in its earning power, and, consequently, in an increase in its earning power as a going concern. This involves, however, the reduction of actual or potential competition. To allow a single company which has secured the bulk of a given industry credit for such merger value as a basis on which to earn profits, raises, therefore, a question of far-reaching public policy.

"The above citation of the corporation's position is one of the items which in Wall Street has found indications of the government's attitude toward the corporation."

Cincinnati and Its Manufacturing Suburbs

The Cincinnati Commercial Association calls attention to the fact that the rank of Cincinnati among the manufacturing cities of the country, as shown by the figures of the Census Bureau, is impaired by the non-inclusion in those figures of the establishments located in its immediate suburbs. In 1905 the Census Bureau recognized the principle that the industrial development of a community is not confined to the corporate limits of its principal city and at that time gave figures for the industrial districts of which the leading cities were the center. That report, it is claimed, gave Cincinnati its proper rank. The census for 1909 departs from this principle and covers only corporate limits, thus giving an advantage to cities which have annexed a large area of contiguous territory. The association says:

The report just issued for Cincinnati includes only industries located within the city limits. It does not include Norwood, with its immense establishments, several of which are the largest of their kind in the world. It does not include St. Bernard, with the Proctor & Gamble plant and other big soap companies, the fertilizer companies and other industries. It does not include Lockland, with a number of industries, one of which is the largest in the world of its kind. Nor does it include the factory districts of Oakley, Carthage, Elmwood Place or any other of the suburbs of Cincinnati.

It is a well-known fact that the industrial development in this community has been moving toward the suburbs for several years, due to the desire of the manufacturers to get away from the crowded districts of the city and where they can have more room for expansion. In the case of a dozen immense establishments which have grown from small beginnings in Cincinnati this removal to the suburbs has taken place. Since this report is confined to the city limits the moving of these industries to the suburbs shows a loss for Cincinnati, while as a matter of fact the industries have doubled and trebled in size, and their growth has been of benefit to the entire community.

The true story of Cincinnati's standing as a manufacturing city will not be told until the government prints its report for industrial districts corresponding to the bulletin issued in 1905 for the industrial districts named. This report will include all the industries in Hamilton, Kenton and Campbell counties.

The Virginia Iron, Coal & Coke Company's Report

The Virginia Iron, Coal & Coke Company has issued its report for the year ended June 30, 1911, which shows a deficit of $262,786, against a deficit of $129,927 for the previous fiscal year. The income account compares as follows:

	1911.	1910.
Gross earnings	$3,370,923	$3,695,225
Expenses	3,034,688	3,177,345
Net earnings	$336,235	$517,879
Other income	35,506	41,003
Total income	$371,741	$558,882
Charges, etc.	634,527	688,809
Deficit	$262,786	$129,927

The general balance sheet of the company as of June 30 compares as follows:

Assets.	1911	1910
Real estate	$14,056,448	$13,795,732
Equipment	310,107	278,848
Securities owned	197,363	197,363
Ledger balance	359,888	625,051
Open accounts	44,809	45,588
Bills receivable	70,470	106,919
Advance to cashier, etc.	5,275	5,325
Cash and sinking fund	104,428	89,772
Material on hand	3,222,810	2,747,707
Profit and loss deficit	653,644	377,500
Total	$19,025,241	$18,269,807
Liabilities.		
Capital stock	$10,000,000	$10,000,000
Bonds	5,305,000	5,332,000
Unpaid vouchers and pay rolls	267,797	217,978
Bills and accounts payable	2,127,262	1,706,603
Interest and taxes	86,604	86,958
Depreciation, replacement funds, etc.	1,238,577	916,266
Total	$19,025,241	$18,269,807

A Southwestern Virginia Ore Development

Walter Graham, Graham, Va., is developing an extensive Oriskany iron ore property and has just opened a mine. The vein is 22 ft. thick and averages 50 per cent. of iron, the ore being massive. Pure limestone of the Trenton measures is in place just north of the ore. The ore and flux are within half a mile of three railroads at the falls of New River, Giles County, Virginia. The water-power at the water gap is estimated at several thousand horse. Hydroelectric treatment of the ore may be indicated, as the falls are immediately at the ore and limestone measures and the Pocahontas coke fields are only 40 miles away by the Norfolk & Western and Virginian railroads from the Falls Gap iron mines. The properties cover the whole field about eight miles on the strike of two veins. Four miles from the Falls Gap mine, on the strike, says Mr. Graham, he has opened the same vein with a cut 10 ft. thick, not yet through the ore; the vein dips about 30 deg. and at this point is practically without cover, the sandstone cap rock having been almost eroded. This looks like an important vein of iron ore and from its excellent location may prove of unusual interest.

Times are good in that section, Mr. Graham reports, and the railroads are moving the largest tonnage in their history. The population is increasing rapidly and manufacturing of all kinds is needed to supply the many new towns and mines. Bond issues to the amount of over $2,000,000 have been voted by the several counties for roads, steel bridges, etc., and the farms are being improved; in fact, prosperity and a general uplift and activity are found in every direction, particularly in mining.

Mining Engineers' New York Section

An Address on Iron and Steel Making in India

Charles P. Perin, consulting engineer of the Tata Iron & Steel Company, Sakchi, Bengal, gave a very interesting address Friday evening, September 22, at the United Engineering Societies Building, New York, on "The Iron and Steel Industry of India." While it is impossible to give an extended synopsis of the address, particularly as much of the information given by the speaker was imparted or supplemented by means of lantern slides, some of the principal points brought out may be reproduced.

In his introductory remarks Mr. Perin told of previous iron enterprises in India. In a small way iron and steel were made in India many years ago. Rich ores found here and there were worked with bamboo charcoal in small forges. Remains of the early iron works are found in central and southern India. Failure to establish a larger industry was not due to any lack of ores, but generally to the difficulty of making good charcoal from the watery woods characteristic of the country. The Bengal Iron Company operated a plant from 1874 to 1879. Its failure was due to lack of capital. The property was taken over by the Bengal Iron & Steel Company in 1890 and this company now has three blast furnaces producing foundry iron which are at Barrakar, 110 miles distant from the plant of the Tata Iron & Steel Company. Their output is about 120 tons a day. In 1905 the company spent $500,000 on an open hearth steel plant, but its operation has not been successful.

Mr. Perin told how in the preliminary investigations made for the Tata enterprise the engineers entered India at Bombay and worked across the central portion of the country through the jungles, winding up at Calcutta. He described the geological formation as revealed by drill work and spoke of the proofs furnished by fossils that India was at one time joined to Africa. The finds of iron ore made by the Tata company's engineers followed by some years unfavorable reports by British engineers whose explorations had shown ores of inferior quality. The Tata enterprise dates from 1902. The elder Tata, who was an influential Parsee merchant and manufacturer, died after the work was started, and the company is now largely in the control of his two sons and a nephew.

C. M. Weld, who was sent out by Mr. Perin, began his exploratory work in 1903. It was thorough and systematic, and resulted in the development at Gurumaishini, 44 miles from the steel plant, of a very large ore body running high in iron. The width of the vein as shown at Rajara Hill is 180 ft., where the ore shows 67 per cent. metallic iron and runs 0.06 to 0.08 per cent. in phosphorus. Mr. Perin also described the coal, limestone and dolomite properties which the company had developed. Eighteen well-defined coal seams have been found in the Jherria field ranging from 5 to 32 ft. in thickness. The coal mines are about 100 miles from the steel plant and the dolomite and limestone quarries about 120 miles. The town of Kalimati, near which is Sakchi, the location of the Tata Iron & Steel Company's plant, on the Bengal & Nagpur Railroad, is 152 miles west of Calcutta. The steel company has secured from the Government a rate of 3 mills per ton mile on its raw materials and the same rate on finished materials, when bound for export.

There are two blast furnaces, a 300-ton mixer, four 40-ton open-hearth furnaces and rail, beam and bar mills; also 180 coke ovens of the Coppee non-recovery type. It was decided that it would be impractical to attempt by-product recovery, in view of the impossibility of condensing ammonia with water at temperatures ranging from 98 to 110 degrees. The volatile content of the coal ranges from 19 to 28 per cent., and its average ash is about 18 per cent. It produces a hard, strong coke. Coal costs $1.04 at the works and the estimated yield is 75 per cent. Coking costs 65 cents a ton, and the total cost of coke in bins at the furnaces will not exceed $2.05. The cost of limestone and dolomite delivered at the plant is 64 cents a ton, including 40 cents freight. Women working in the quarries receive 3½ to 4 cents a day and men 5 to 6 cents a day.

Pig iron cost is expected to be somewhat above $6 a ton, and the estimated profit on pig iron sold in the market is $6 a ton. For rails the cost is figured at 56 rupees, while the average selling price on which estimates of profits are based is 83 rupees, the rupee being equal to 32 cents. On beams and bars a profit of 20 to 30 rupees is estimated. The capitalization of the Tata Iron & Steel Company is $7,000,000, and there is a bond issue of $2,000,000. One of the difficulties in connection with the enterprise was securing a sufficient supply of water. About $80,000 was spent on impounding basins and a capacity of 260,000,000 gal. was provided. The average number of laborers in the employ of the company in July was 4661.

New York Section Organized

Mr. Perin's address was preceded by a business meeting at which the organization of the New York Section of the Institute was completed. C. F. Rand, chairman of the Committee on Organization, presented a report which included the bylaws for the government of the new section and a list of officers. By action of the meeting the bylaws were adopted and officers were elected as follows: Chairman, B. B. Lawrence; vice-chairman, Dr. James Douglas; secretary and treasurer, Bradley Stoughton. These three, with C. P. Perin and George F. Kunz, constitute the executive committee.

The Atlas Ore Dryer

Mine owners on the iron ranges of upper Michigan have been greatly interested in the experimental ore drying plant erected by M. A. Hanna & Co. at their Hollister mine, near Crystal Falls, where Frank Scadden is manager. The apparatus installed, which was furnished by the Atlas Dryer Company, Cleveland, Ohio, has a capacity of approximately 400 tons per 24 hours, as the ore is fed, and dries from 14 or 15 per cent. down to about 4 per cent., at an expenditure for fuel of about three cents per ton.

It consists of a revolving steel cylinder, about 5 ft. in diameter and 30 ft. long, set at an incline toward the discharge end, and with lifting blades for cascading the material in its passage toward that end. This is inclosed in a steel casing like a boiler setting, with a furnace at the front and a fan which draws the heated air from it through suitable inlets in the cylinder and into direct contact with the ore as it passes toward the rear. The design is such that the air at its highest temperature and greatest velocity is brought in contact with the ore in its wettest state; and these are gradually lessened in degree, until at the discharge end there is practically no heat or fan suction remaining and very little moisture in the material.

This elimination of the air suction at the rear of the cylinder obviates the necessity for a dust chamber, and the dried ore falls by gravity, through the open end, to an elevator. The shape of the air inlets, coupled with the cascading effect, prevents any leakage from the cylinder during the passage of the material.

As a result of the satisfactory operation of this trial plant, J. D. Ireland, general manager of the mining department of M. A. Hanna & Co., Duluth, has contracted with the Atlas Dryer Company for the installation of two dryers, with an aggregate capacity of 2,000 tons per day, at the Brunt mine.

The Hollister mine was the first one visited during the recent meeting of the Lake Superior Mining Institute and many of the members made notes at that time of the operation of the drying plant but were unable to secure any details of its construction other than what were visible from the exterior of the casing.

The Old Dominion Iron & Nail Works Company, Richmond, Va., is making a specialty of quality irons which are marketed under the brands of Old Dominion Extra Staybolt Iron and Old Dominion Extra Engine Bolt Iron, which are guaranteed to standard specifications. The company states that while the general apathy of buyers has affected the trade of railroads and engine builders, yet this has by no means occurred to the degree affecting the bulk purchases of ordinary material for which there are no specifications as to quality. The fact is mentioned that a growing tendency is noticed to scrutinize the quality of materials and standardize specifications to the end of securing efficiency, as the cost of materials in most cases is much less than the labor cost expended on them.

Steel Men Inspect Knox Water-Cooled Devices

In response to the invitation of the Knox Pressed & Welded Steel Company, Pittsburgh, Pa., to operators of iron and steel works to inspect its plant at Niles, Ohio, formerly owned by the Niles Boiler Company, a large number of visitors gathered September 21. They came from Pittsburgh, Duquesne, Sharon, Homestead, Youngstown, Alliance, Cleveland and other cities, arriving on various trains during the day. The Pittsburgh party, headed by Irvin F. Lehman, treasurer of the Knox Company, arrived at Niles about 10 a. m. It was received by various representatives of the company and escorted to the plant. After registering, the visitors examined different blue prints, showing details of Knox water-cooled devices for open-hearth furnaces, which had been mounted on the walls of the office for their inspection. They were then taken through the plant.

The boiler shop is about 120 x 176 ft. and contains a 200-ton United Engineering & Foundry Company's hydraulic forging press, crane, rolls, pneumatic equipment, etc. Here different designs of Knox water-cooled welded steel ports, door frames, doors and welded steel chills for rolling open-hearth furnaces were shown, which had blue prints attached giving the interior construction. The welding department was next visited. It is 50 x 110 ft., equipped with a crane and two systems of welding—the Linde and the H. W. Dopp Company's. The possibilities of oxy-acetylene were practically shown and received much attention. The machine shop is 32 x 80 ft. and contains a full line of drills, boring mills, punches, etc. The oxy-generating room is 48 x 60 ft. and the gas room is 12 x 20 ft. The power plant is 50 x 72 ft. and contains boilers, engines and generators for lighting and power.

Formerly doors and door frames for open-hearth furnaces were made of castings. The Knox idea is to use plates which are pressed and welded together, making an absolutely tight device. These doors and frames should last for an indefinite period, as they can be made absolutely water tight. One user remarked that he had had a Knox service door in service for the past 15 months and it is as good to-day as when he put it on. The life of the cast-iron door has been shown by experience to be very uncertain.

The water-cooled ports exhibited caused much favorable comment. The Knox Company showed its cross port, which is removable from the furnace on the charging floor side, with the aid of the charging machine. Two types of long ports were shown, the first being the cooling of the arch and the second the cooling of the arch and two sides. All of these ports are intended to cool refractories in the open hearth furnace, as the Knox theory is absolutely to cool the brick work, thus prolonging its life, and is opposed to exposed water cooling, as that undoubtedly slows down the furnace.

Steel manufacturers using the Knox type of water-cooled equipment include the Carnegie Steel Company, Cambria Steel Company, Pennsylvania Steel Company, Maryland Steel Company, Jones & Laughlin Steel Company, Upson Nut Company, Andrews Steel Company and others.

A luncheon was served to the visitors at the Allison Hotel at Niles. In the afternoon small parties were made up and taken to various steel works within easy reach, where the Knox specialties were seen in actual use. The Knox Company was represented by L. L. Knox, vice-president and general manager, Niles, Ohio; L. S. Schmidt, William Pendleburry, superintendent: Geo. W. Gerwig, Pittsburgh; Irvin F. Lehman, treasurer, and the following directors: John S. Craig, William C. Coffin and F. M. Bowman, all of Pittsburgh.

Electric furnace treatment of nickel ore was discussed in a paper read before the American Electrochemical Society in its general meeting at Toronto, September 21 to 23, by Walter Leonard Morrison. It was a thesis presented to the Case School of Applied Science for the degree of Engineer of Mines. It included an extended study of the development of a commercial process and estimated the cost of operation of a 100-ton smelter, operating 300 days per year, with power at $25 per kilowatt year, at $885, producing 15 tons of ferro-nickel-silicide, or 1 ton of the metal alloy, for $59. The cost of a 100-ton smelter, including aerial tramway, rockhouse, crusher, cars, buckets, etc., was itemized, total $280,540.

Pacific Coast Selling Department of the Steel Corporation

The United States Steel Products Company, whose chief business is handling the export trade of the United States Steel Corporation subsidiaries, has organized a Pacific coast department. It will have charge of selling and distributing the products of the various subsidiaries of the Steel Corporation on the Pacific coast territory. The enlargement of the corporation's operations in that territory and the carrying of much larger stocks of finished material than heretofore were indicated some time ago by the acquisition of the Risdon Iron Works, with their extensive water frontage. It was then stated that the building of large warehouses for the carrying of various forms of finished iron and steel was contemplated, particularly stocks of sheets and tin plates, pipe and tubes, wire products, structural steel and bars. The Pacific coast department will embrace all the territory now defined by each of the subsidiary companies as comprising its Pacific coast territory.

The warehouse business of the corporation on the Pacific coast will also be consolidated under the jurisdiction of the new department, which will take over, carry and handle the stocks of the subsidiary companies at the established distributing points in that territory. These offices and warehouses are located at San Francisco and Los Angeles, Cal., Portland, Ore., and Seattle, Wash. The offices' addresses are: San Francisco, Rialto Building, on Mission street, corner of New Montgomery street; Los Angeles, Jackson street, corner Central avenue; Portland, Selling Building, Sixth street, corner of Adler street, and Seattle, Fourth avenue south, corner of Connecticut street. The executive offices of the United States Steel Products Company in charge of the new department are: A. T. De Forest, vice-president; W. A. Ross, assistant treasurer; H. F. Wilson, auditor and assistant secretary. The headquarters will be in the Rialto Building, San Francisco.

The consolidation of the Steel Corporation's Pacific coast interests under the direction of one subsidiary company is aimed to afford to its patrons the greatest efficiency as to shipments and a general distribution service. The new department will not only sell from warehouse stock but for direct shipment from mill the product manufactured by the American Bridge Company, the American Sheet & Tin Plate Company, the American Steel & Wire Company, the Carnegie Steel Company, the Illinois Steel Company, the Lorain Steel Company, the National Tube Company, the Shelby Tube Company and the Tennessee Coal, Iron & Railroad Company. The new selling arrangement is effective October 1.

The Development of Blast Furnace Size

The first furnaces for treating iron ores known were not very high and had a square section of uniform size throughout the height. Later, according to Stahl und Eisen, they were subjected to a narrowing at the two extremities to concentrate the heat toward the interior and to utilize the combustible better. Little by little modifications have taken place. The first indication of the change from the polygon section to the round was shown in 1826, but in the meanwhile, until 1858, blast furnaces were constructed octagonal in section, a design which did not disappear definitely until artificial refractory bricks were used for furnace construction. It was about this time that efforts were made to heat the air blast by means of the blast furnace gases and also to supply this source of heat to the steam boilers. A chart given in Stahl und Eisen indicates that in the period from 1821 to 1825 blast furnaces were of about 300 cu. ft. contents; that from 1825 to 1830 there was a notable increase in size up to perhaps over 900 cu. ft.; that beginning about 1865 they again sharply increased until in 1870 the size was over 3500 cu. ft., where it remained until about 1880, when a sharp increase was again made, reaching, in 1890, 7500 cu. ft.; in 1900, 8800 cu. ft., and in 1905, 14,000 cu. ft.

The total operating cost of an Atlas Diesel-type engine of 300 hp., running a division of the shops of the Atlas Engine Works, Indianapolis, is approximately $7 a day. The engine, which was described at length in *The Iron Age* of September 14, is built by the Atlas Engine Works.

Inland Steel Company's Bolt and Rivet Works

Construction Features and Equipment of a Plant Representing Noteworthy Economies

The Inland Steel Company recently put in operation at Indiana Harbor, Ind., its new plant for the manufacture of railroad track bolts, spikes and structural rivets. The growth of the Indiana Harbor Works of this company and its expansion within a comparatively few years into the several finished lines, including sheets, sheet bars, structural shapes, steel bars, and finally bolts and rivets, has been one of the interesting chapters in the development of Chicago mill capacity. The Western market for bolts and rivets has been dependent largely upon the Joliet, Ill., mills and has obtained a part of its requirements from eastern manufacturers. The situation, therefore, indicates the opportuneness of this new capacity which is capable of producing about 125 tons daily. The Inland Steel Company has emphasized the fact that it will supply bolts and rivets made from open-hearth steel, such as is used in this company's other finished products.

Fig. 1.—General View of the Heating Furnace and Machine Floor in the Main Bay, with the Nut Machines in the Foreground, and the Rivet, Bolt and Spike Machines Beyond

The new plant is located directly west of the company's continuous bar mill, from which the stock is supplied. It is 120 ft. wide and 460 ft. long. The framework is of structural steel, all of the material for which, with the exception of a few gusset plates, was rolled by the Inland Steel Company. For the side walls a type of construction has been used which has been adopted as a standard at the Indiana Harbor Works, consisting of concrete slabs 6 in. thick, poured in steel forms. Fig. 1 is a general view of the interior of the building, giving the general layout and character of the equipment. Crane service is provided over the entire floor area by two 5-ton Alliance Machine Company cranes, one being installed in each of the two bays into which the full span of the building is divided. The wider bay has a width of 80 ft. to accommodate the furnace and forging machine floor, while the other has a span of 40 ft., in which are the machines for finishing the nuts, bolts and rivets. At the east end of the building where machine shop, stock room and shop offices are located, in the narrower bay and at the north end of the building which is used as a storage and packing floor, the mill floor is at the yard level. The furnace and forming maching floor, as shown in the illustrations, is elevated to a height of 4½ ft. With this elevation the arrangement of the machines provides for the dropping of the product from the machines by gravity directly on sorting conveyors, by means of which they are continuously delivered to the burring, tapping or bolt-threading machines. The furnace floor is built of cinders filled in within concrete retaining walls. The balance of the flooring, which is filled sand, is surfaced over suitable sleepers and subflooring with a matched hard pine.

Furnace and Forging Floor

The general contour of the elevated floor may be seen from the illustration. Recesses are provided at the east end for a general approach from the main floor and for the spur track on which the bar stock is brought from the continuous bar mill into the building and under the crane. Along the machine side of the floor recesses are arranged so that the ends of the conveyors may be located directly under the discharge from the machines above.

At the time of taking the views accompanying this description the complete complement of machines and furnaces, the bar racks in front of the furnaces and the conveyors had not been installed. Foundations have been provided for six 4-in. hot-pressed nut machines with six heating furnaces arranged in two rows, three on either side of the furnace floor approach. Provision is made for 10 rivet and bolt machines and for five spike machines. In front of each of these machines the arrangement pro-

Fig. 2.—Ferguson Heating Furnaces for Rivet and Bolt Stock and the Relative Position of the Machines Into Which the Stock is Fed Direct from the Furnaces.

vides for a heating furnace, or 15 in all, the entire group being in a continuous line and 12 ft. 6 in. between centers. In front of each of these furnaces will be an inclined gravity bar rack, the positions of the racks being indicated in the illustrations by the temporary wooden horses now substituted. The bars are brought directly from the cars by the crane, deposited on these racks, fed into the furnaces, heated, drawn directly into the feed jaws of the machines, headed and cut off in a single operation, dropped on the conveyor, inspected and sorted, delivered to the several finishing tools, filled into kegs, then trucked to the shipping floor, where the kegs are headed, labeled, checked out and loaded into cars on the shipping track that parallels the building. Lost motion and manual operations which would be excessively expensive in the handling of a product comprising small pieces in large numbers have been practically eliminated.

The furnace and machine equipment now installed and in operation includes four nut machines built by the National Machinery Company, Tiffin, Ohio, with an aggregate capacity of 4000 1-in. nuts every 10 hours and four 3 ft. 8 in. x 4 ft. 7 in. Ferguson oil-burning hot pressed nut furnaces built by the Railway Materials Company, Chicago. These are shown in Fig. 4. The heating furnaces are located with reference to the machines so that the machine operator can, with almost no change of position, take the heated bar from the furnace turn and feed it into the machine. Six continuous feed rivet heading machines with interchangeable dies for rivets or track bolts were furnished by the Ajax Mfg. Company, Cleveland. These machines have a capacity for every 10 hours of 40,000 rivets in sizes from ½ to 1½ in. There are three spike machines, built by the Youngstown Foundry & Machine Company. These are equipped with ratchet-operated automatic feed rolls and have a capacity of 10 tons per day. In Figs. 2 and 3 views of the rivet and spike machines with their furnaces are shown. These furnaces are the Ferguson continuous rivet type, built by the Railway Ma-

Fig. 3.—View from the End Opposite That in Fig. 1. Spike Machines in the Left Foreground. The Blowers Supplying Air for the Furnaces Appear on the Lower Level, and at the Extreme Right the Fuel Oil Pumps.

Fig. 4.—View of the Row of Nut-Making Machines and Heating Furnaces. On the Lower Level are Two Thread Rolling Machines and Beyond Them Three Vertical Burring Tools for Removing the Burrs from the Hot Pressed Nuts.

terials Company. They are 2 ft. 1 in. by 24 ft. with four combustion chambers and two waste gas outlets. At the feeding end the furnaces are equipped with vertical sliding doors externally water cooled. Each furnace has a Worthington oil meter for registering the fuel consumption. This is estimated at 21 gal. of fuel per ton of bars heated, and the furnaces will heat approximately one ton per hour, depending somewhat upon the size of the stock.

In Fig. 3 the blowers supplying the air for the heating furnaces and the oil pumps supplying the fuel are shown. The two air blowers deliver into a common pipe and have an aggregate capacity of 46,000 cu. ft. of free air per minute. They are direct driven by 100-hp. shunt-wound, 220-volt Westinghouse motors running at 1150 revolutions and were furnished by the National Blower Works, Milwaukee. The blast pipe is laid in a floor conduit that extends to all of the furnaces and is covered with a removable flooring. The same conduit carries the oil and water pipes, all of which are thus easily accessible. The two oil pumps are 3¾ x 4 in. Fairbanks, Morse & Co. type, gear driven from 2¼-hp., 22-volt, Westinghouse motors. The oil supply is drawn from two 12,000-gal. tanks outside of

Fig. 5.—View of the Auxiliary Bay in which are the Machines for Finishing the Nuts, Rivets and Bolts, and from the Further End of Which They are Packed and Shipped.

Fig. 6.—The Multiple Continuous Nut Tapping Machines, Which Are Also Included in the General View Fig. 5.

the building into which oil is pumped through a direct pipe line from the Whiting plant of the Standard Oil Company.

Finishing Department

A general view of the finishing bay is shown in Fig. 5. In Fig. 4 are seen the group of three 1¼ in. vertical semi-automatic nut burring machines and the three 1-in. thread rolling machines. Fig. 6 shows the installation of six multiple spindle nut tapping machines. The equipment also includes a 1-in. bolt pointer and two 3-spindle rapid horizontal 1-in. bolt threaders. The nut burring machines, nut tapping machines and bolt pointer were furnished by the National Machinery Company. The thread rolling machines are of the type built by the Waterbury Farrel Foundry & Machine Company, Waterbury, Conn., and the thread-cutting machines were built by the Acme Machinery Company, Cleveland. All of the machines have semi-automatic feeding devices. The burring machines have a feeding slot accommodating a number of nuts and delivering them to the burring tool consecutively as the operator fills up the slot. The spindles of the tapping machines are staggered at intervals determined by the time of the tapping operation, so that the operator may work continuously from one spindle to the other. The tapped nuts

Fig. 7.—Machine Tool Floor. These Tools are Chiefly Employed in Making Dies for the Forging Machines.

accumulate on the tap until the chuck jams. This pressure on the chuck brings into operation a counter tap releasing arrangement and the tap drops down permitting the nuts to fall off. The operator has only to push aside the tapped nuts, rechuck the tap with one motion and the spindle is again in service. These machines have a capacity of 9500 1-in. nuts every 10 hours. Following the machining operations the bolts, nuts and other products are rattled in two 36 x 48 in. tumblers to remove the scale. The tumblers were furnished by the Northern Engineering Works, Detroit. The completion of the installation will increase the number of burring machines from three to six, thread-rolling machines to six, tapping machines to 10, thread-cutting machines to four, and bolt-pointing machines to two.

Power System

All of the machines in the plant, with the exception of the spike machines, are geared or direct connected to motor drive. The three spike machines are belt driven through a jack shaft to two 75-hp. Westinghouse motors running at 475 revolutions. Westinghouse motors are used throughout. The drive system is under the Electric Controller & Mfg. Company's remote control. The speed of the machines is regulated from controllers placed in steel cabinets, and the starting and stopping of the machines is controlled by push buttons on the machines.

Fig. 8.—View of the Shipping Floor.

Current for the plant is continuous and is generated at the central mill station which operates on blast-furnace gas. Current is distributed to the plant in sections which may be operated independently of each other. The same plan is applied to the lighting system, which is made up of seven distinct lighting circuits. The lighting units are 500 candle-power individual tungsten lamps at the corners of 20 x 40 ft. spaces and hung at a height of 25 ft. above the floor.

An unusually complete equipment for the making of dies is included in the plant. In Fig. 7 a view of the machine shop is shown. The character of the equipment is clearly illustrated and includes a No. 3 Cincinnati universal miller, three Gould & Eberhardt shapers, two Cincinnati upright drills, a Cincinnati planer, three Lodge & Shipley lathes, a Greenfield Machine Company grinder, a new type Acme Machinery Company hobbing die grinder, Higley metal saw and the usual equipment of smaller auxiliary tools. For hardening and tempering two Ferguson oil furnaces are installed.

The mill offices and stock room are located adjoining the machine shop. These are entirely inclosed and in addition to offices for superintendent and master mechanic, provide commodious and convenient facilities for the time-keeping, shop drafting, shop cost and storeroom departments. While a plant naturally presents its best appearance when new, the manner in which the layout of this mill provides for the continuous and mechanically handled movement of material through the various stages, the conduiting of all pipes and wires, and the splendid system of power drive and control give promise of a permanent absence of disorder.

The Warwick Iron & Steel Company, Pottstown, Pa., is about finishing its new thin-lined blast furnace, the dimensions of which are 14 x 80 ft. While this furnace is in most respects of the same character as the thin-lined furnaces, which have been described in our columns, some improvements have been made in its construction. The company this year is manufacturing low phosphorus pig iron in addition to other grades. A slight turn for the better is observed in the business of the company, as it is obtaining a little more money for pig iron.

In South Russia 41 blast furnaces are now in operation, or six more than at this time last year. Several old furnaces are to be started up and a new one is building at the works of the Société de Makeevka.

The Detroit Seamless Steel Tubes Company, Detroit, Mich., recently decided to make a specialty of cold-drawn seamless steel tubing for mechanical purposes, and has made up a large stock of this material, which will be maintained at all times for the convenience of consumers desiring immediate shipment from stock. A monthly stock list is issued and mailed to the trade.

The Seitz Automobile & Transmission Company, Detroit, Mich., has just completed its new plant, 80 x 350 ft., and has part of its machinery installed. The factory will be running full force in about 60 days, enabling the company to double its output of motor trucks and delivery wagons.

The F. R. Patch Mfg. Company, Rutland, Vt., manufacturer of stone working machinery, has made an addition to its erecting shop 50 x 100 ft. and 30 ft. high. A 15-ton crane runs through both the new and old shop. The latest product of this company is an open side diamond saw used for striping and jointing stone. When used for striping the platen travels, carrying the stone under the saw; when jointing, the platen is stationery and the saw travels across the stone. The platen is 12 ft. long, 4 ft. wide, wholly of iron, planed level and lined every 6 in. so that a stone can be set accurately and quickly. The machine is either motor driven or arranged to be driven by belt.

The Wiederholt Chimney

A New Type Employing Fire and Pressed Brick and Reinforced Concrete

The reinforced concrete chimney has been one of the important developments in that type of construction within the past few years. Although chimneys of concrete are not new, some having been built a considerable time ago, it is only within the past decade that the use of reinforced concrete has been a matter of interest throughout the country. Probably this was due to the fact that the few concrete chimneys built a long time ago were not successes from a commercial standpoint since the cost was so much higher than that for chimneys constructed of brick or other material as to be prohibitive. It has remained, however, for the Wiederholdt Construction Company, Commonwealth Trust Building, St. Louis, Mo., to develop a new type of chimney in which fire brick, reinforced concrete and pressed face brick are used. The advantages of this type of chimney, which is an adaptation of the tile chimney built by it for some time, are that the use of inner and outer brick walls eliminate entirely the cost of temporary forms and framing required by reinforced concrete chimneys, while the inner wall of fire brick protects the concrete and the outer one of pressed brick enables attractive chimneys, architecturally considered, to be built. At the present time the company has under construction a large chimney for the International Harvester Company at Chicago, Ill., and one for the Illinois Glass Company at Alton, Ill., the latter being the one illustrated. Fig. 1 is an exterior view of the chimney, while Fig. 2 is a sectional elevation giving the details of its construction.

The use of these three materials gives a combination that not only possesses strength and freedom from the effects of expansion and contraction, but also one that entirely protects the middle layer of reinforced concrete which gives the chimney its stability from the hot gases passing through the center and from the cooler air on the outside. Protection from the heated gases is secured by the inner wall of fire brick which covers the concrete at every point, while the outer wall enables the chimney to be built in accordance with any design or plan and presents an attractive exterior. The intervening wall of reinforced concrete is stronger than an equal volume of brickwork and the reinforcement entirely eliminates the danger of cracking which frequently occurs in chimneys where brick alone is used. The concrete portion of the chimney wall is confined permanently and is not subjected to the removal of temporary forms. This arrangement prevents the development of weak points which sometimes cause the entire structure to collapse. Another advantage of this type of construction is a chimney of any desired wall thickness can be built without changing the character of the brick.

The cross section of a part of the wall of the chimney being constructed for the Illinois Glass Company, shown in the lower portion of Fig. 2, illustrates the peculiar shape of the inner faces of the brick by which they are locked in place as the concrete sets. At the point where the section is taken the wall is 20 in. in thickness, so that an idea can be gained of the thickness of the two brick faces and also that of the concrete intermediate section. The hight of the chimney, exclusive of the base, will be 175 ft. and the internal diameters are 9 ft. at the top and 7 ft. at the base respectively. The chimney is divided into five sections, each 35 ft. in length, and the wall thicknesses for the different sections are respectively 20, 17, 14, 12 and 10 in. In the bottom section the reinforcement

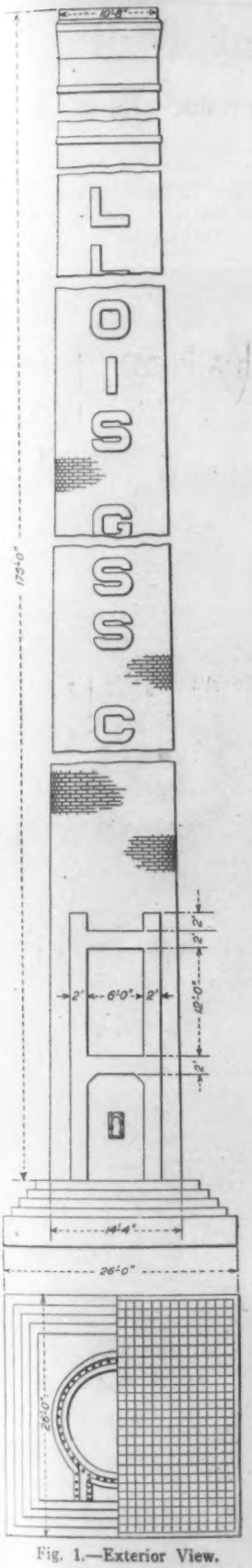
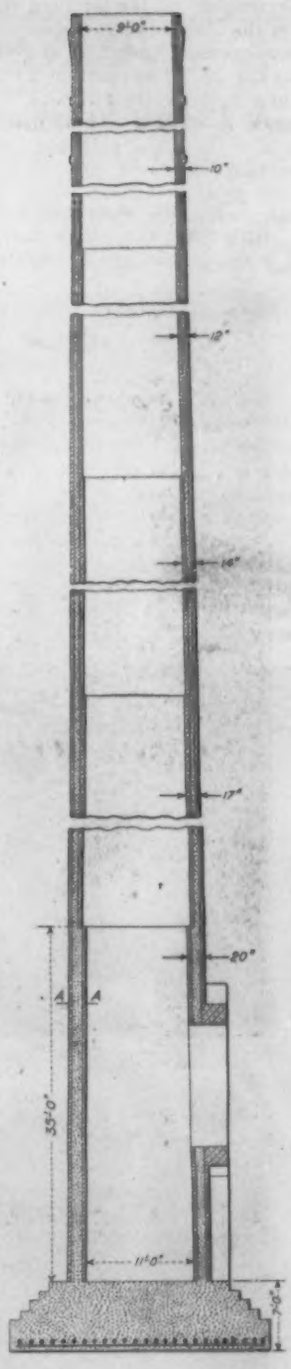


Fig. 1.—Exterior View.



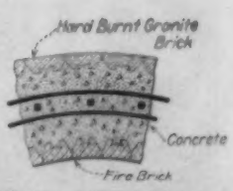


Fig. 2.—Sectional Elevation.

consists of 1-in. square twisted vertical bars spaced 11 in. on centers and held in place by horizontal rings composed of ½-in. twisted bars placed 9 in. apart. These rings are used throughout the entire chimney, the spacing being 9 in. in the two lowest sections and 18 in. in the other three. The vertical bars employed as reinforcement for the concrete are ¾ in. square in the second and third sections counting from the base upward, while in the last two sections ½-in. square twisted bars are used.

At the present time this company has a large number of its chimneys in use in various types of industrial plants. Among the different classes of establishments where these chimneys have been erected are glass works, zinc smelters, clay works, oil refineries; power houses of electric railway, light and power companies; milling and brewing companies, office buildings, warehouses, railroad shops and plants of refrigerating, packing and ice companies. These chimneys vary in hight from 57 to 212 ft. and the internal diameters range from 3 ft. to 13 ft. 3 in. Practically all of the chimneys used by the glass and clay works, zinc smelters and oil refineries are subjected to temperatures of 150 deg. F., and over.

A New Lackawanna Merchant Mill

A 12-Inch Roughing and Four 10-Inch Finishing Trains—The Product Ranges from 1-4 to 7-8 Inch Sections

The new merchant mill for the production of bars, wire rods and other merchant shapes which was begun about a year ago at the Buffalo plant of the Lackawanna Steel Company has been completed recently and was placed in operation the first week in September. It is to be known as the company's No. 9 mill and is designed to roll rounds from ¼ in. to ⅞ in. in diameter and equivalent sections of squares, flats, ovals and shapes, and will have a capacity of 10,000 to 12,000 tons per month. It is located parallel to the present merchant mill in a steel building 105 ft. wide by 1050 ft. long.

Fig. 1.—General View of the New No. 9 Merchant Mill of the Lackawanna Steel Company, Buffalo, N. Y.

The new mill, which was furnished by the Morgan

Fig. 2.—Nearer View of Morgan Double Inclined Escapement Type Cooling Bed.

Construction Company, of Worcester, Mass., consists of one six-stand, 12-in. continuous roughing train and four two-stand 10-in. finishing trains. The billets, which are 30 ft. in length and 1¾ in, 2 in. or 2½ in. square, are brought from the billet mill on cars and delivered to the billet storage, which occupies a space 105 ft. wide by 156 ft. long in the south end of the mill building, and is commanded by a 15-ton electric overhead crane furnished by the Morgan Engineering Company, Alliance, Ohio.

From storage the billets are handled by crane, weighed and introduced into furnace by means of a Morgan conveyor of the usual type. The heating furnace, which was installed by the Morgan Construction Company, is its suspended roof continuous type, having a hearth 30 ft. by 25 ft. The furnace is gas fired, gas being furnished by four 10-ft. Morgan gas producers. After heating the billets are delivered to the first stand of the continuous roughing mill and a power driven toggle shear located between the furnace and the roughing mill shears them to proper length. This shear is arranged to operate independently on two separate lines of billets, cutting them as they are passing through the rolls. From the continuous roughing mill the bar passes to the 10-in. finishing mills.

After passing through the finishing stands the bar is delivered to a double cooling bed 360 ft. long. This is of the Morgan inclined escapement type and is designed to handle sections from ¼-in. rounds up to 3-in. wide flats. For preparing this material for shipment there are two bar shears and two back shear tables 75 ft. long complete with bundling pockets and 30-ton scales. The back shear tables are each equipped with gauges and electrically operated pushoffs. There are also four pouring type automatic reels for coiling wire, rods, nut flats and other sections. The reels mechanically discharge the coils on a conveyor which delivers them to a hook carrier. The later automatically takes the coils from the first conveyor and delivers them to any point on the loading dock.

Including the crane at the billet storage, there are three 15-ton electric overhead traveling cranes, all furnished by the Morgan Engineering Company. The crane runway extends the full length of the mill.

The engines for driving both the roughing and finishing mills were furnished by the Mesta Machine Company. The continuous mill is driven by a heavy duty tandem Corliss engine and the finishing mill by a heavy duty horizontal cross compound Corliss engine. Both engines are connected with a 72-in. type A Helander barometric condenser furnished by the Mesta Machine Company.

In addition to constructing the new mill, the old merchant mill has been extended 350 ft. on the north end to provide additional room for finishing and shipping. An electrically operated stock transfer car 90 ft. long has been installed to deliver material from one mill to the other, thus saving the switching of cars in cases where material from both mills is to be loaded out in the same car.

Standard Scale and Truck Orders.—The Standard Scale & Supply Company, Pittsburgh, Pa., has made shipment of ten carloads of scales and trucks for use at the new meat-packing plant of the Sulzberger & Sons Company, at Oklahoma City, Okla. This order and one for 35 scales, mostly 120-ton railroad track, for the Department of Water Supply, Gas and Electricity, New York, also recently shipped, are the largest for this class of goods that have been placed in recent years, and the selection of Standard scales and trucks on such large orders strikingly points to the merits of the products manufactured by this company. In the equipment for the Sulzberger & Sons Company were included a large number of special new pattern portable suspension scales with steel plate platforms which have lately been put on the market by the Standard Company. This scale obviates the necessity of cutting the floor where the scale is placed and it is only necessary to use an incline of two inches at each end to run on the platform. This type of scale is particularly desirable for users where the floors are damp or wet, as there is no opening to allow the water to run through to the floor below. Because of this advantage, it is being adopted by packers and others who have to contend with such conditions.

Fig. 3.—Continuous Roughing and Finishing Trains.

The Riter-Conley Mfg. Company, Pittsburgh, has completed in record time the erection of the steel work on the Gary Screw & Bolt Company's new plant at Gary, Ind. Ground was broken June 16 and the first shipment of steel was received August 10. The erection of the steel work was completed August 28. The plant consists of 10 bays, each 360 ft. long, with a total width of 475 ft. There are seven crane runways through the building, which will be equipped with four 3-ton and three 10-ton cranes. The Gary Screw & Bolt Company is an identified interest of the Pittsburgh Screw & Bolt Company.

The Langelier Hammering Machine

Details of a Machine Equipped with a Pneumatic Chuck for Handling Heavy Work

Recently the Langelier Mfg. Company, Providence, R. I., has added to its standard line of hammering and swaging machines a heavy No. 4 hammering machine equipped with a special rotary attachment having an automatic pneumatically-operated chuck for handling work. This machine can be used for producing an immense variety of different forms of hammered pieces from hollow stock, and the output is six pieces per minute finished within limits of 0.0015 in. in diameter. A very good idea of the general appearance of the machine from the operating side is given in Fig. 1, which also shows the pneumatic rotary attachment and the main drive very clearly. A specimen piece of work turned out by the machine is illustrated in Fig. 2.

The pneumatic attachment consists essentially of a U-shaped casting oscillating on a shaft at the rear of the head and made with arms which straddle this part and extend toward the front of the machine. The left arm carries the work arbor which fits into the tubing to prevent the walls from crimping under the hammer blows and reducing the diameter. The chain-driven pneumatic chuck holding the work and a special air cylinder for opening and closing the chuck and for feeding and withdrawing the chuck pistons are supported by the other arm. The chuck and the work are revolved in order that the blank may be properly formed. All the functions of the air cylinders are accomplished by a single movement of the lever at the right of the machine. The air closes the chuck in such a way as to hold the work tightly while the hammering operation is being carried on, and when the chuck is brought back to the extreme rear position the air pressure is removed from the jaws and the air exhausts into the atmosphere, thus permitting the work to be removed.

The base of the machine is a large substantial casting of square cross section, serving to support the head and attachment on top and the main drive at the side in addition to inclosing the lower vertical plunger with its operating mechanism. The head contains the main spindle, the spindle rolls and the upper vertical plunger. A belt from an overhead countershaft running to the pulley at the rear end drives the spindle, which in turn revolves the heavy balance wheel provided to maintain smooth running and absorb the vibration of the hammer blows and also the driving pulley for the rotary attachment which is located at the rear. The spindle rolls which operate the upper vertical plunger and the upper die are located at the front. Twelve blows are struck for every revolution of the main spindle, which operates at a speed of 325 r.p.m., so that the blank receives 3900 blows every minute, the intensity of them being controlled by the top screw on the head. The lower die, which is the moving one, is held in a holder on the top of the lower plunger. This works vertically between the two members of the head which extend down inside the base of the machine at the front. Reciprocating motion is imparted to this plunger by a powerful toggle lever fulcrumed on the trunnion shaft journaled in the two hanging members of the head. This shaft is actuated through a lever arm and roller by the large wiper cam at the rear of the base which receives its motion from the main driving shaft at the side through worm and spur gearing.

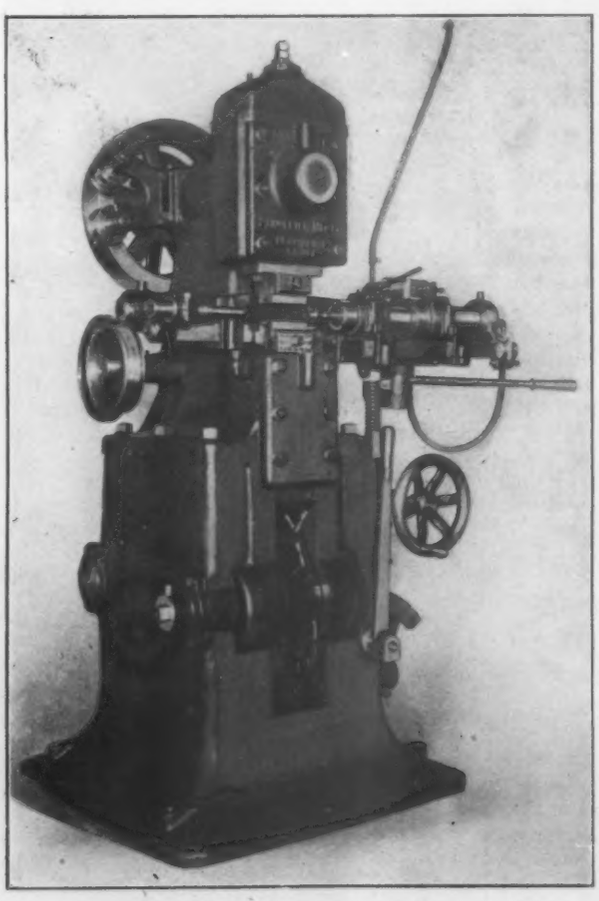


Fig. 1.—The No. 4 Hammering Machine with Pneumatic Attachment Built by the Langelier Mfg. Company, Providence, R. I.

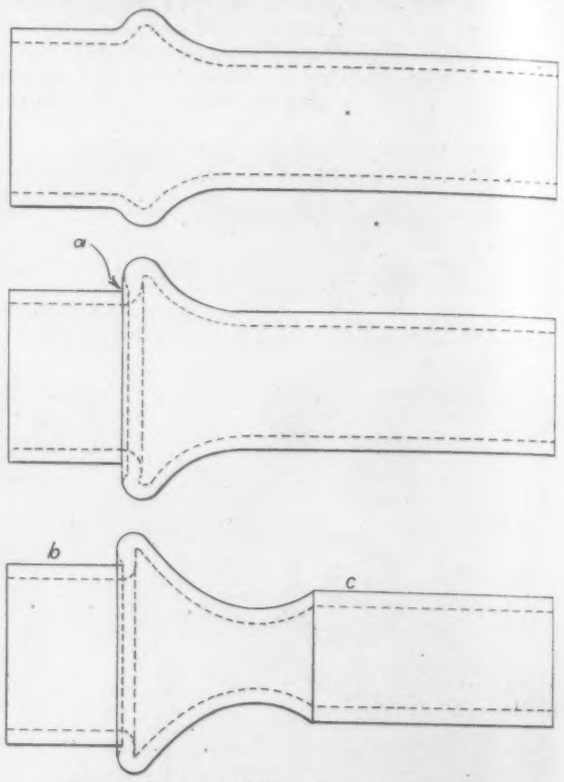


Fig. 2.—Specimen of Work Done by this Machine.

As the wiper cam revolves the toggle lever arm is alternately raised and depressed, thus simultaneously lifting and lowering the plunger and the bottom die and bringing it gradually into contact with the upper die. This contact is maintained a sufficient time to finish the work uniformly, after which the lower plunger recedes quickly and stops. The trunnion shaft bearing cap of the toggle lever is extended into a fork-shaped journal, in which is pivoted a crank lever that is keyed to the shaft projecting through the side of the base, near the floor. The rocking motion of this shaft is imparted to a segment cam, which in turn transmits it through the roller riding upon it to a vertical slide extending under the pneumatic attachment. This alternate raising and lowering of the attachment is required to keep the work central with the dies until it is entirely finished.

The blanks used by this machine are previously reduced and formed in the swaging machine until they assume the shape shown at the top of Fig. 2. The shoulder at *a* in the middle view is produced by a power press and tools. After the shoulder is completed the pieces are then ready for working in the hammering machine, where they are made to assume their final form, which is straight from the point *b* to the shoulder and concave from the shoulder to the point *c* as illustrated in the lowest view.

The operation of the machine is not interrupted between the ejection of the finished piece and the insertion of a new blank. This is accomplished by having the main driving pulley revolve continuously and making a cam trip a ratchet pawl at every revolution. This stops the roll clutch in the rear and as soon as the operator has slipped a new blank into the chuck, the clutch is released by a downward pressure of the hand on the starting lever across the front of the machine and the hammering process is continued.

The complete weight of the machine is approximately 5900 lb.

The Burt Ventilator

A new ventilator equipped with a power-driven fan is being placed on the market by the Burt Mfg. Company, Akron, Ohio. This ventilator is especially designed for use in factories where large volumes of smoke, steam

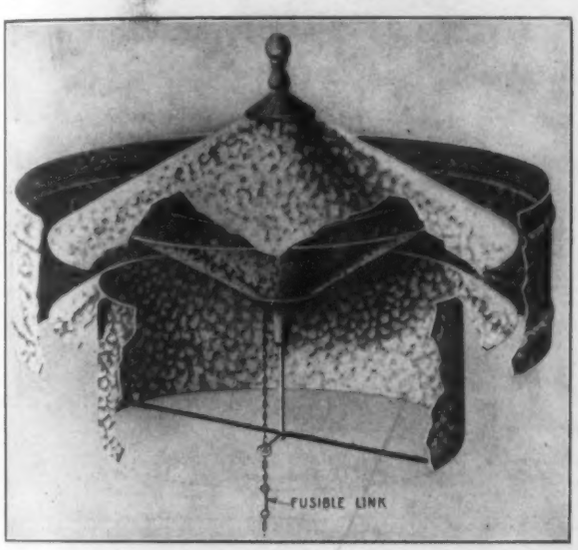


Fig. 1.—A New Ventilator with Power-Driven Fan Made by the Burt Mfg. Company, Akron, Ohio.

or impure air have to be removed, the fan being placed in the lower part of the exhaust pipe. It is claimed that with the use of the fan for carrying a strong current of air through the pipe the efficiency of the ventilator is increased approximately ten times. An exterior view of

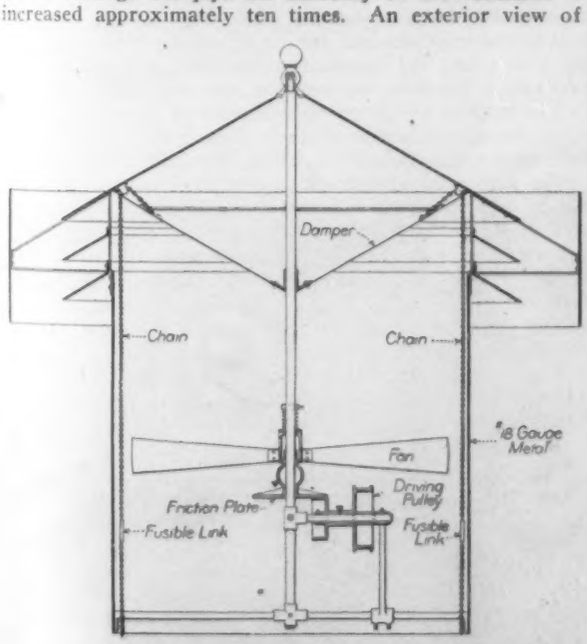


Fig. 2.—Sectional View, Showing Details.

the ventilator is given in Fig. 1, while Fig. 2 is a sectional view showing the details of its construction.

The fan, the position of which is clearly illustrated in Fig. 2, revolves on a 1¼-in. shaft extending from the top to the bottom of the ventilator. A belt drive can be used for the fan or it can be motor driven by a direct-connected individual motor or by employing a single motor to drive a group of fans. In Fig. 2 the fan is shown driven by a pulley and a friction plate. The power required to drive each fan at a speed of from 200 to 300 r.p.m. is approximately ¾ hp. for each fan.

The ventilator which is illustrated in Fig. 1 is equipped with a cone damper, shown in the upper portion of Fig. 2, that slides up and down. This damper is supported from either side by a fusible link, so that it will drop and close automatically and shut off the draft in case of fire, a spring being placed above the fan to relieve the shock when the damper drops. As the automatic closing of the damper on account of fire is a somewhat remote contingency the spring is considered superfluous, and will be omitted in the construction of future ventilators.

Galvanized iron and Toncan metal are employed in the construction of the ventilator. Two sizes, namely, 36 and 48-in., are made, and metal tops alone are furnished. The company has recently installed 20 of the larger size ventilators, 14 in the plant of the Goodyear Tire & Rubber Company, Akron, Ohio, and 6 in the works of the Lima Locomotive Company, Lima Ohio.

Unusual Service Records in Wire Works

The long record of service of many of the employees of its Spencer, Mass., works makes the Spencer Wire Company, Worcester, Mass., noteworthy among industrial companies. About 150 men are employed. Three—Louis Sherman, Albert Snow and Anthony Aegis—have been in the company's employ over 50 years, the first named holding the record of 54 years of continuous service. Four men have a record of 47 and 48 years, and another group of four have been with the company over 40 years. Eight others have worked continuously in the Spencer plants over 30 years, five between 25 and 30 years, ten between 20 and 25 years, twenty between 15 and 20 years, fifteen between 10 and 15 years and twenty-four between 5 and 10 years. In some cases grandfathers, fathers and sons are working side by side.

It is believed that wire drawn at Spencer, Mass., about 1820 or 1821 was the first fine iron wire made in this country. The operation was performed in the kitchen of a farmhouse and antedated the establishment of the Washburn & Moen Wire Works at Worcester, Mass., by ten years. From this beginning the present extensive works of the Spencer Wire Company have been developed. The officers of the company show an order dated September, 1826, for 50 lb. of wire from Charles Sigourney, Hartford, Conn., a merchant of that time. There was intermittent drawing of wire at Spencer until 1845, when the present works were established by Richard Sugden and Nathaniel Myrick. Mr. Sugden continued at the head of the works for 50 years and died in 1895, but the Spencer Wire Company, which was incorporated in 1876, still operates the Spencer mills, although the headquarters of the company were removed to Worcester in 1900. Work at the Spencer plant has been continuous under the present ownership and there has been no labor difficulty. The mill village, of which the industry is a center, is of a type rarely met with outside of New England.

The Buffalo Forge Company, Buffalo, N. Y., was recently awarded the contract for supplying the new Taft Hotel, New Haven, Conn., with heating and ventilating apparatus. The system is so arranged that the main portion of the hotel, the kitchens, the ballrooms, the bathrooms, the boiler-rooms and the laundry each has a separate and independent outfit. The main unit and the kitchen unit, in addition to the usual Buffalo steel plate supply and exhaust fans, are equipped with Carrier air conditioners for washing and humidifying the air. The main unit delivers 40,000 cu. ft. of air per minute. The supply fan for this unit is almost 12 ft. in diameter. The kitchen unit is so designed that the exhaust fan is capable of handling 25,000 cu. ft. of air per min., while the supply fan delivers 18,000 cu. ft. With this arrangement, all objectionable fumes are removed from the kitchen All the fans, pumps and disk wheels in this installation are electrically driven.

Electric Switching Locomotive

Although designed primarily for shifting coal cars and other switching service on an interurban trolley line, the new 240-hp. 30-ton all-steel electric switching locomotive designed and built by the Terre Haute, Indianapolis & Eastern Traction Company is also available for use in industrial establishments where cars have to be moved. A number were designed and built at the company's Indianapolis shops under the supervision of L. M. Clark, master mechanic for the company, and many unique features are incorporated in the construction.

With switching locomotives there are of necessity frequent movements of the controller handle to the first and second notches with an almost continuous breaking of heavy currents. For that reason the HL control of the Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa., which also furnished the other electrical apparatus, was used in preference to the K type. A further advantage of this type of control for locomotive work is that the controller occupies but little space in the usually crowded cab and leaves plenty of room for the operator to move about as his duties may require. As will be noticed from the accompanying engraving, which shows the interior of the cab, the wiring and the arrangement of apparatus have been very carefully worked out. All

View in the Cab of a New All-Steel Switching Locomotive, Showing Arrangement of Controlling Apparatus Supplied by the Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa.

of the conductors in the cab are carried in wrought-iron conduits and the incandescent lamps for lighting the cab are arranged on condulet outlets.

The controller and the engineer's valve are mounted on a wrought-iron support away from the sides of the cab, so that the motorman can walk entirely around them. The switch group for the control and the reverser are mounted under one of the sloping hoods at one end of the cab, while the compressor and the other air brake details, with the exception of the apparatus that must be available for manipulation, is mounted under the other. The grid control resistors are mounted underneath the car and the entire arrangement of the equipment is such as to facilitate inspection. Small incandescent lamps for illuminating the air gauges in the cab are used and are connected with the lamps in the hoods.

The locomotive body is constructed entirely of steel, with an underframing of 7-lb. I-beams and the extreme dimensions are length over buffers, 30 ft.; overall width, 10 ft., and hight from rail to trolley base, 12 ft. 3½ in. The total wheel base is 22 ft. 4 in. and the rigid wheel base is 4 ft. 10 in. The body bolsters, the journals and the couplers all conform to the M. C. B. standards. Solid steel wheels 34 in. in diameter are used and are mounted on axles 5 in. in diameter and 4¼ in. long. The dimensions of the journals are 4¼ x 8 in. The motive power is supplied by four No. 93-A-2 motors and the gear ratio is 16 to 71. Westinghouse air brake equipment is employed throughout, the brake cylinder measuring 12 x 12 in. The total weight of the locomotive is 60,880 lb. The miscellaneous equipment of the locomotive includes pneumatic standers and electric heaters.

The Atkins Hack Saw Machine

A New Type with Automatic Stroke Variation

Increased capacity due to the use of the entire length of the blade is the principal advantage claimed by E. C. Atkins & Co., Indianapolis, Ind., for its No. 7 Kwik Kut

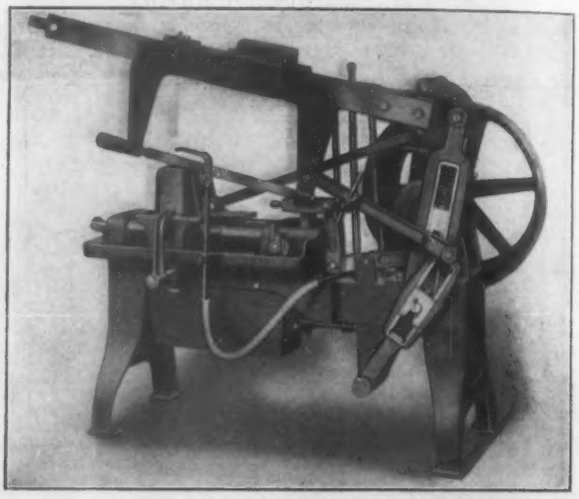


Fig. 1.—The No. 7 Kwik-Kut High Speed Power Hack Saw Machine, Built by E. C. Atkins & Co., Indianapolis, Ind.

power hack saw machine. This variation in the length of stroke is automatically secured through the operation of closing the vise, an arrangement which is said to secure a saving of from 50 to 200 per cent. in the blades used, together with a corresponding increase in the efficiency. Other features of the machine include a raising device which lifts the saw from the work during the back stroke, a special type of lubricating system, a quick return of the saw arm and an adjustable depth gauge. Fig. 1 is a general view of the machine, while Figs. 2 and 3 show the automatic adjustment for changing the stroke of the saw frame and the mechanism for driving the saw respectively. The contrast between the shavings produced by this machine as compared with one of the others now on the market is clearly shown in Figs. 4 and 5, the latter showing the shavings produced by the Atkins machine.

The automatic adjustment to any size of stock is covered by a patent granted to this company and the arrangement is shown in Fig. 2. The steel bar connecting the back vise jaw with the link hanger changes the stroke of the saw frame to correspond with the dimensions of the stock being cut. This arrangement automatically insures the use of the entire length of saw blade, a feature which it is claimed was not possible heretofore without the use of some hand-controlled device for changing the stroke. The saw operates on the draw cut principle, that is, with a pulling instead of a pushing motion, the mechanism being illustrated in Fig. 3. The adjustment of the stroke

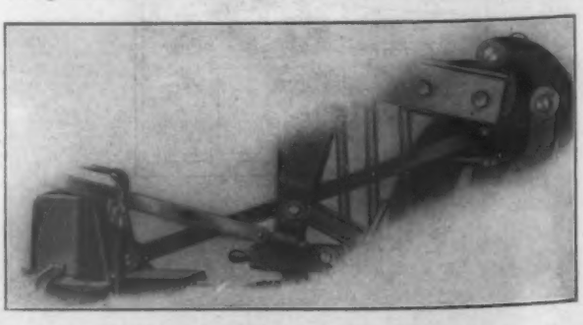


Fig. 2.—The Automatic Adjustment for the Stroke.

and the way in which the saw teeth come in contact with the stock, in conjunction with the pulling motion, are said to cause the blade to come into more direct contact with the stock and thus increase the efficiency. The auto-

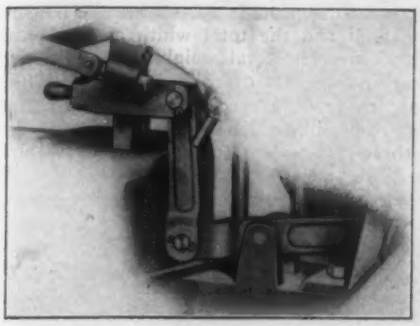


Fig. 3.—The Mechanism for Driving the Saw.

matic raising device is also illustrated in Fig. 3, which lifts the blade from the work during the back stroke, thus avoiding unnecessary wear of the saw teeth and adding materially to their life. If desired the saw may be lifted to any desired angle and automatically kept in that position.

The construction of the machine is very strong, as will be seen by referring to Fig. 1. The base is of the extra heavy cabinet pattern which permits no vibration, while the draw cut feature also adds to the smoothness of the operation of the machine. A long compensating bearing for the saw frame insures an accurate cut. A two-speed pulley is provided which enables the machine to be used at its highest efficiency in all sizes and classes of stock, since the operator is enabled to regulate the speed to suit the requirements of the particular material being handled. With this pulley a variation of 30 strokes per minute is possible which can be used to great advantage on the various kinds of material cut in this machine. The depth gauge is a special adjustment which controls the saw arm and will stop the saw automatically at any desired depth of cut. The lubricating system consists of a tank and pump. The latter forces the cooling compound upon the saw blade while it is cutting the metal and the tank catches the liquid and filters it. It is returned to the point of contact by the pump. A quick reverse motion of the saw after each cutting movement adds materially to the speed of operation.

The easy, even, steady motion of the saw, together with the draw cut feature, produces shavings which differ materially from those of other machines. The contrast in the shavings produced by this machine as compared with some of the others, is clearly brought out in Figs. 4 and 5, which are photographs slightly magnified of shavings produced by one of the standard machines now on the market, Fig. 4, and those produced by the No. 7 Kwik Kut machine, Fig. 5. These shavings were pro-

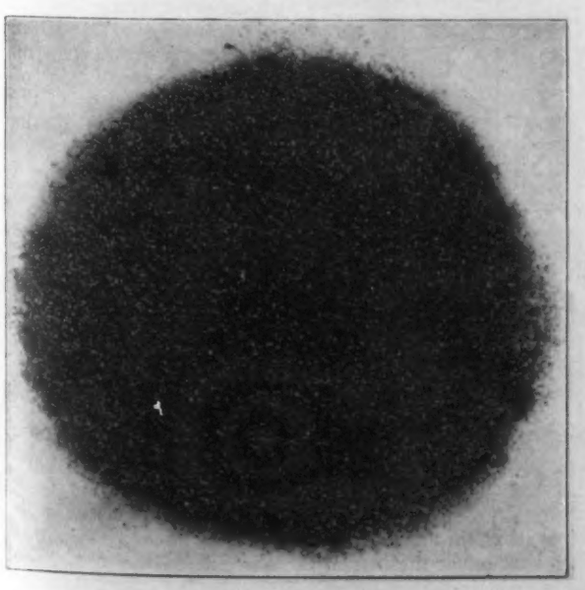


Fig. 4.—Shavings Produced by a Machine Now on the Market.

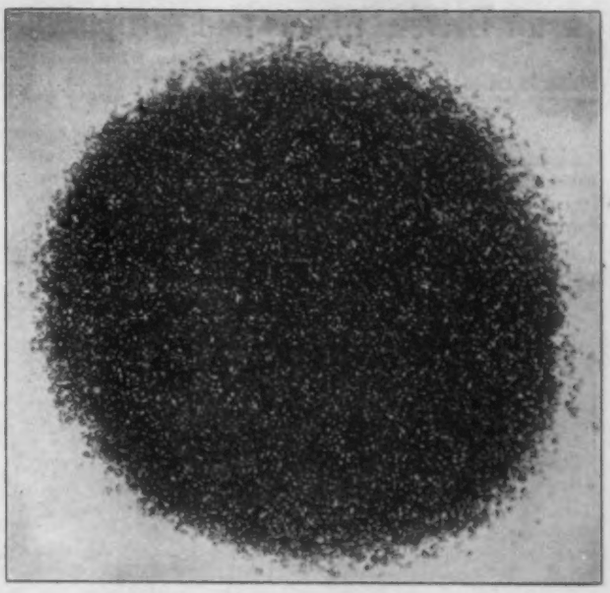


Fig. 5.—Shavings Produced by the Atkins Machine.

duced by the same blade operating in the same piece of steel and it will be noticed that in the older machine the shavings are small and broken instead of being larger and in one piece.

Steam Shovel Work

An exceedingly thorough and complete treatise with reference to steam shovel performance has been issued by the Bucyrus Company, South Milwaukee, Wis., under the title "Hand Book of Steam Shovel Work." To our knowledge, no similar record is in existence, and its exceptional value to engineers and contractors in general can scarcely be appreciated without a perusal of the book itself. It is in hand-book size and neatly bound, the text of 374 pages being divided into 10 chapters. The first four chapters deal with the nature of the problem involved in the use of the steam shovel as compared with other methods of excavation; the general conditions under which a steam shovel normally operates, with formulae and diagrams for preparing and plotting cost curves; field conditions having to do with the general economical handling and superintendence of the job, and suggestions for the classification of work in preparation for estimates. The following five chapters present a total of 45 actual reports of steam-shovel operation in six different kinds of work, including sand and gravel, earth and glacial drift, clay, iron ore and rock. The final chapter is general in character, offering many pointed and extremely valuable suggestions covering daily incidents likely to be encountered. The reports presented are completely illustrated and are detailed in every particular, presenting an exact record of actual performances and offering models for future records.

The writer, who has himself spent considerable time in the open-pit mines of the Mesaba Range and has also collected from personal observation a large amount of data regarding the operation of steam shovels, finds this book by comparison not only an infinitely greater and more comprehensive presentation of facts but with an accuracy and an adherence to circumstances most commendable. The work is published at this time in its first edition and is developed from a report by the Destruction Service Company to the Bucyrus Company. The price is $1.50.

The new home of the Gary Commercial Club, Gary, Ind., is regarded as one of the finest in the country for a city of the size. The building cost $50,000. The first floor is devoted to business purposes. On the two upper floors are the library, committee rooms, banquet room, billiard room, reception parlors and an auditorium with a seating capacity of 400. The officers and directors are: President, H. S. Horton; vice-president, H. F. McCracken; secretary, A. D. Highlands; treasurer, E. C. Simpson; other directors, A. S. Hess, H. G. Hay, Jr., H. H. Highlands, A. P. Melton and H. H. Harries.

Motor-Driven Sheet and Strip Mill

Details of a Recent Installation of the Philadelphia Roll & Machine Company

For cold rolling special metals, such as Monel metal sheets and strips as well as finished rods and wire, a new 20-in. motor-driven sheet and strip mill has been recently completed by the Philadelphia Roll & Machine Company, Philadelphia, Pa. This mill was installed in the plant of Shimer, McGlynn & Co., of that city, who make a specialty of Monel metal cold rolled planished sheets and strips as well as finished rods and wire. In addition to this sheet mill a 12-in. rod mill was reequipped and connected so as to be driven by the motor operating the sheet and strip mill.

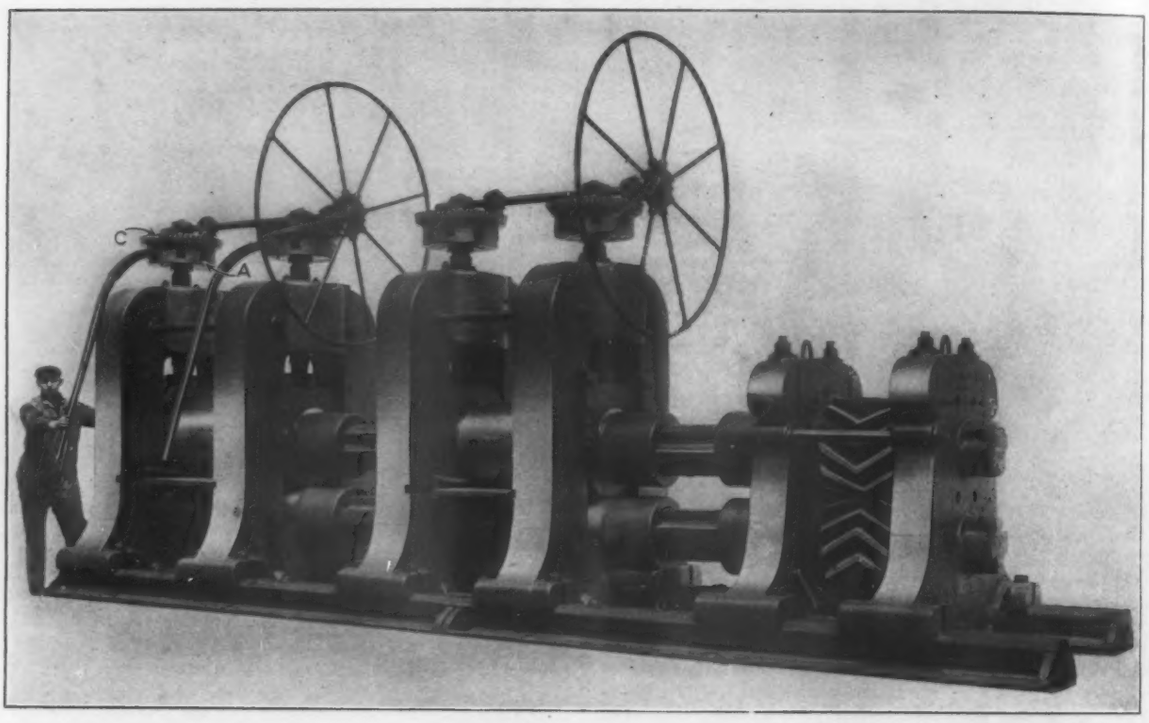


Fig. 1.—A Motor-Driven Sheet Mill for Cold Rolling Monel Metal Built by the Philadelphia Roll & Machine Company, Philadelphia.

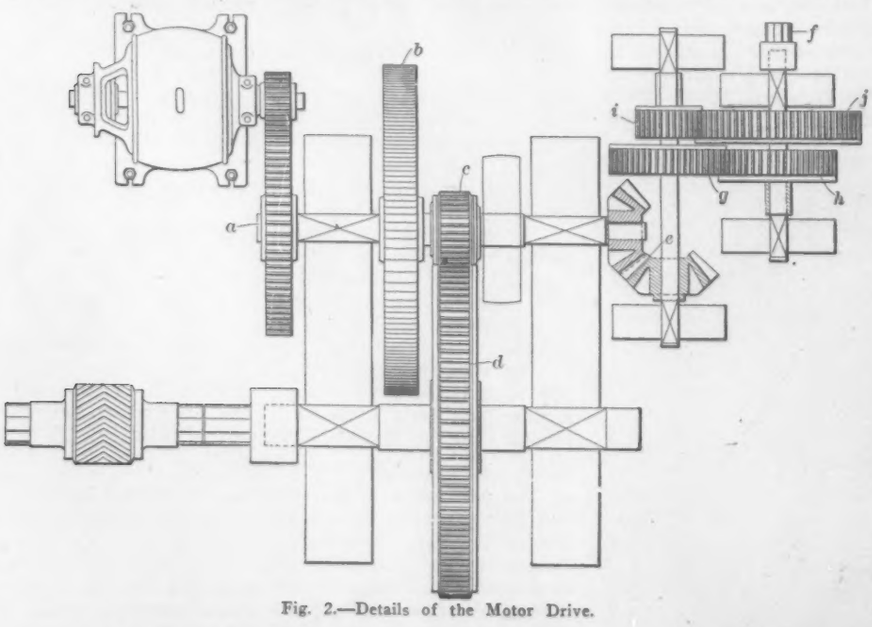


Fig. 2.—Details of the Motor Drive.

A view of the 20-in. mill is given in Fig. 1, while Figs. 2 and 3 show the details of the motor drive and the adjustable gearing forming a special feature of the mill respectively.

The sheet mill equipment consists of one stand of 20 x 36 in. two-high roughing rolls and one stand of 20 x 30 in. two-high finishing rolls and a set of 20-in. two-high pinions. It was specially designed to meet the extraordinary heavy duty requirements encountered in this class of work. The area of the housing posts is 196 sq. in., the housings being 7 ft. 6 in. high and the total width at the central point being 4 ft. 8 in. The total weight of the mill, including the gearing and one set of rolls, was 181,130 lb. All the castings are made of a special charcoal air-furnace iron. The 12-in. rod mill, which is not illustrated, is of the ordinary three-high type equipped with a special design of rolls for cold rolling Monel metal bars as well as the ordinary rolls for use in connection with the rolling of other alloys.

The entire installation is motor driven, a 200-hp. 220-volt 375-ampere General Electric induction motor being used. The current, which is supplied at a potential of 2200 volts, is reduced to 220 volts in a transformer house located approximately 100 ft. from the motor, the voltage drop between the secondary of the transformer and the armature terminals of the motor being ¼ volt.

The motor operates at a speed of 650 r.p.m. and is geared to a secondary shaft, *a*, Fig. 2, running at 143 r.p.m. An 8-ft. fly-wheel, *b*, weighing 12,500 lb., and having a rim speed of approximately 3600 ft. per minute is fastened upon this shaft. It is designed to equalize the motor load, and experience has proved that the kinetic energy which it possesses is sufficient to complete the rolling of an ordinary bar through the 20-in. mill even though the power was shut off at the instant the bar entered the rolls. The 20-in. mill is driven directly from the secondary shaft by gears *c* and *d*, the speed being reduced to 28 r.p.m. On

account of the different metals to be rolled in the 12-in. rod mill, which stands at right angles to the 20-in. mill, it was necessary to provide for its operation at different speeds and for this purpose selective change gears are employed. The extended secondary shaft operating through a bevel gear, *e*, drives the shaft *f*, operating the 12-in. mill at a speed of 143 r.p.m. Two sets of gears provide for a speed variation for the rolls, the rate being either 143 or 47 2/3 r.p.m. The first set of gears *g* and *h* are of cast steel with cut teeth, while a special air-furnace charcoal iron gear metal is employed for those of the second set *i* and *j*. In Fig. 2 these gears are both shown in mesh, but in actual operation the idle gear is kept out of mesh by a split spacing sleeve bolted on the shaft. In this way a substantial variable speed drive is provided by slipping the gears in and out of position, or if the mill is not to be operated, the spacing sleeves will keep both gears out of mesh.

The sheet and strip mill is of the usual counterbalanced type with the exception that new features have been adopted in the adjustable gearing, details of which are given in Fig. 3. This gearing consists of a lever adjusting disk, A, Fig. 1, and *a*, Fig. 3, which is secured to the top of the screws by keys *b* and serves as a means of backing up the screws in case the machine should stall. The bevel gear wheel C, Fig. 1, and *c*, Fig. 3, is fitted into this adjusting disk by a projection entering into an annular boss and is held in place by a securing plate, *d*, which clamps it fast in any desired position. This plate is also fastened to the adjusting disk and also holds the horizontal shaft chair *e* in position. Pin holes *f* are also provided in the bevel gear and the adjusting disk for use in case it is desired to secure them in any one relative position, an arrangement which, it is claimed, overcomes one of the objections frequently made to the bevel gear type of adjustment and enables adjustment to 0.001 in. to be made.

Ample provision has been made for the lubrication of the roll and the pinion necks because of the great pressure which the metal exerts upon them during the rolling process. To accomplish this, specially designed deep pockets were cored in the castings to retain the lubricant. The wearing parts are so constructed and fitted in position that they can readily be removed in case of wear and replaced at a very slight cost.

The mills and the rolls were designed under the supervision and direction of William P. McGlynn, general manager of Shimer, McGlynn & Co., who also had charge of the installation work, and the various special features embodied are the result of his extensive experience in connection with the rolling of special metals and alloys.

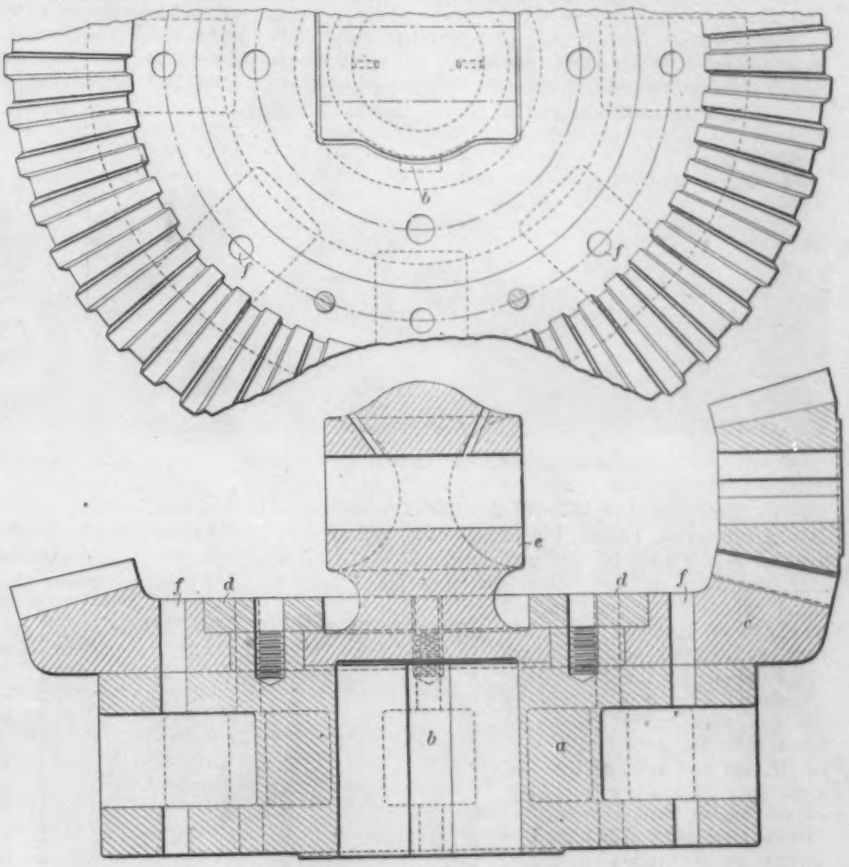


Fig. 3.—The Adjustable Gearing, Forming a Special Feature of the Mill.

The First Mesaba Range Steam Shovel

The fact has been recalled recently that the first stripping of ore beds on the Mesaba iron range was done at Biwabik, Minn., on what is now the property of the Biwabik Mining Company. The shovel used was a Marion style A, sold originally to the Hamilton Ore Company, which used it in 1891 for loading from its stockpiles at Iron Mountain, Mich. Systematic exploration of the Biwabik property was begun by J. A. Brown in 1892. The following year the Biwabik Ore Company was organized by John T. Jones, now of Iron Mountain, and P. L. Kimberley, since deceased. This company purchased the steam shovel mentioned and shipped it to Missabe Station, where it was dismantled, hauled piecemeal to Biwabik and there reassembled for stripping.

This shovel was a friction machine. It carried a 1½-yd. dipper and weighed 40 tons. As compared with any shovel previously built it was a veritable monster and admired as the wonder of the excavating world; but, beside the 150-ton 6-yd. machines of the same company's design which are now operating in the district, notably at the St. Paul mine of Corrigan, McKinney & Co., it was a pygmy, both as regards size and the quantity of material which can be handled in a given time. The contrast shows what an advance there has been in methods of ore mining in the open workings of the Mesaba range in less than two decades.

C. A. T.

French Blast Furnace Consolidation.—Negotiations have been under way, it is reported, for the consolidation of five important blast furnace companies in the Longwy district of France, namely: La Société Metallurgique de Senelle-Maubeuge, F. de Saintignon et Cie, Marc Raty et Cie de Saulnes, La Société Lorraine-Industrielle de Hussigny-Godbrange, and La Société Metallurgique de Gorcy. Altogether the proposed amalgamation would control 24 blast furnaces.

Owing to his appointment as one of the nine councilmen of Pittsburgh, P. J. McArdle has resigned as president of the Amalgamated Association of Iron, Steel and Tin Plate Workers. New officers of that association have been elected as follows: John Williams, president; M. F. Tighe, secretary and treasurer; David J. Davis, assistant secretary; Benjamin I. Davis, managing editor of the Amalgamated Journal, the official organ of the association; Joseph A. Bowers insurance secretary.

The Philadelphia Steel & Forge Company, Tacony, Philadelphia, Pa., is doubling the power plant in its rolling mill and is also installing a 12-in. train of rolls and a heat-treating plant.

Solar Pumping Plant

Utilizing the Sun's Rays to Generate Mechanical Power

Absorbing the heat of the sun's rays and utilizing it to generate mechanical power has been a line along which considerable experimenting has been done for some time.

Fig. 1.—View of the Sun Absorber Used by the Sun Power Company, Tacony, Philadelphia, Pa.

One of those who have followed this line of investigation is Frank Shuman, Tacony, Philadelphia, Pa., and an early type of engine built by him was illustrated in *The Iron Age*, December 19, 1907. Since that time Mr. Shuman's plans have been entirely revised and a new pumping plant has been constructed along the revised designs by the Sun Power Company. Fig. 1 is a view of the sun absorber, which, as its name indicates, gathers the rays of the sun and extracts the heat from them. Fig. 2 is a front view of the engine shed, showing the various mechanical appliances employed in connection with the plant, while in Fig. 3 the plant is shown pumping 3000 gal. of water per minute to a hight of 33 ft.

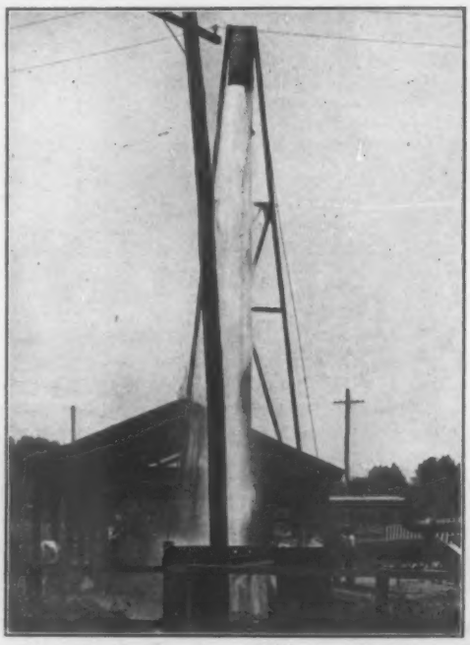


Fig. 3.—The Plant Pumping 3000 Gal. of Water per Minute to a Hight of 33 Ft.

One of the methods of generating heat by the sun's rays is to employ concave mirrors to concentrate the rays from a relatively large area upon a smaller one and so intensify the temperature to a degree sufficient to vaporize water or other liquids. The principle of the Shuman hot box is entirely different. No attempt is made to concentrate the heat, but only to absorb the direct rays of the sun and eliminate as far as possible the losses by radiation. The first generator consisted of a small wooden box covered by two layers of glass with a small intervening air space, and in the box was placed a miniature ether boiler. This apparatus was exposed to the sun's rays, the ether distilled and the amount of heat which might be absorbed was determined. As an experiment, a small toy engine was successfully run with the original apparatus. A second generator consisted of a 2-in. steam pipe 16 ft. long and insulated at the bottom and inclosed in a box covered by a double layer of glass. A third type of power plant, which was the one illustrated in *The Iron Age*, December 19, 1907, was composed of a bed of water pipes properly insulated against heat loss, the unit measuring 18 x 60 ft. and the motor being an ether engine. With this apparatus 3½ hp. was developed.

Details of the Plant

In the new power plant which has been built in Philadelphia the component parts are the absorber, a low-pressure steam engine, condenser and the necessary auxiliaries. In a general way the absorber, which is shown in Fig. 1, is composed of a series of units, each containing a flat metal honey-comb water vessel rectangular in shape and closely resembling in appearance a large waffle. This vessel is inclosed in a flat wooden box covered with two layers of glass having a 1-in. air space between them and having the under surface of the box protected from loss of heat downward by a layer of cork 2 in. thick and two layers of waterproof cardboard. These boxes are mounted on supports which raise them approximately 30 in. above the ground, and which enable them to be inclined perpendicular to the sun at the meridian, the adjustments of the inclination being made approximately once in three weeks. On two sides of the boxes plane mirrors are mounted, so that it is possible to absorb more rays of the sun and reflect them upon the surface of the water vessel, which is connected at one end to a feed pipe from the water supply and at the other to a steam pipe. The steam pipes from the various units

Fig. 2.—Front View of the Engine Shed, Showing the Mechanical Appliances and the Sun Absorber in the Background.

are connected together and enter into a main 8 in. in diameter which conveys the steam to the engine.

The engine, which, together with the other auxiliaries is shown in Fig. 2, is a new type, low-pressure, reciprocating steam engine, and connected to it is a condenser of the ordinary type and auxiliaries such as will be regularly found in any condensing plant. The water from the condenser is pumped back into the absorber, thus insuring a continuous closed circuit and the only water loss, it is stated, is that due to accidental leakage.

The power from this plant is used for pumping water with an ordinary reciprocating steam pump, and in Fig. 3 the plant is shown operating at its capacity in the latitude of Philadelphia, which is 3000 gal. of water per minute lifted to a hight of 33 ft. Tests made in August, 1911, showed that 4825 lb. of steam could be developed in 8 hr. from 26 banks of units. Each of these banks contains 22 single units and has a light absorbing area of 10,296 sq. ft. and an actual area of 5148 sq. ft. While the power produced was much lower than normal to the plant, it is believed that when it is put in operation in the tropical countries, where it was designed to be used, much more power will be developed, as the losses of heat by conduction and convection in the northern latitudes which are considerable will be eliminated and the average air temperature is higher, or approximately 100 deg. F.

As compared with a 100-hp. coal plant employing a modern compound condensing engine with a coal consumption of approximately 3 lb. of coal per b.h.p., it is shown that the approximate cost of operating the sun and the coal plant are $3,750 and $2,750 per annum respectively, exclusive of the cost of coal. It is estimated 375 gross tons of coal would be required for a year for the coal plant, which, when divided into the $1,000 excess operating cost of the sun plant over the coal plant, gives an average cost per ton of $2.66. In the localities, however, where the sun plant is intended to be used, namely, in the tropics, the cost of coal per ton varies from $5 at seaports to $30 at inaccessible points, the general average being approximately $15 per ton. In localities such as these the sun plant should be able to supply power for different purposes, including irrigation projects, cheaply.

A New Foundry and Mechanical School at Boston

Announcement is made of the completion of the buildings of the Wentworth Institute, Huntington avenue and Ruggles street, Boston, work on which was begun in October, 1910. The institute is named after its founder, Arioch Wentworth, and it was established "for the purpose of furnishing education in mechanical arts." The buildings include the foundry, the main shop building, 145 x 49 ft., five stories high, including the carpenter shop, plumbing shop and electrical wiring room, a large power house 80 ft. square and a wing for administration offices. Laboratories are planned for work in practical mechanics, electrical appliances and electrical machinery, building materials and power plant operations. There are also rooms for mechanical drawing and tool designing besides lecture and recitation rooms.

Special reference is made in the announcement of the opening of the school to the course in foundry practice. This will cover all branches of molding, core making and a study of the mixing of iron in connection with cupola practice. The shop work will be supplemented by practical talks on materials used in the foundry, the selection of sands and the handling of the cupola. E. A. Johnson, who was at the head of the foundry department of the Winona Technical Institute at Indianapolis, will have charge of the foundry work at Wentworth Institute. It is stated, as indicating the practical character of the work planned at Boston, that the proceeds from the sales of the students' work at the Winona Institute foundry in the past year amounted to over $15,000. The sales of castings have been sufficient to pay the running expenses of the department and to give the students a small dividend, thus reducing the cost of their education. All the graduates of the Winona School are now holding responsible positions, and a number of them are commanding high salaries.

While ample endowment was left for Wentworth Institute it has been decided to charge a small fee to students. This is $6 a term for day students and $6 per season of two terms for evening students. The directors of the institute have provided part time courses in addition to the full time courses, the former requiring students to attend their classes at the institute every other week, while in the alternate weeks they have opportunity to work at some regular employment. An employment bureau will be started which will, so far as possible, secure employment for the graduates of the institute. Arthur L. Williston, principal of Wentworth Institute, is a graduate of the Massachusetts Institute of Technology and for a time was a member of the faculty of Ohio State University, Columbus, Ohio. He has been engineer on a Western railroad, and was a member of the commission which established the Carnegie Technical Schools at Pittsburgh. At Pratt Institute, Brooklyn, N. Y., he was for twelve years at the head of the School of Science and Technology.

The Globe Iron Works to Remove Its Plant

The Globe Iron Works, at present at Stockton, Cal., will move its entire business before January 1 to North Sacramento, Cal., where it is now building an extensive plant comprising a foundry, machine shop, pattern shop, forge, car shop, warehouse, office, etc. These buildings will consist mostly of steel and concrete and will be fireproof. The new plant occupies a ground space of four and a half acres and is located on the Western Pacific Railroad and the Northern Electric Railroad, a spur track running directly into the center of the works from the Western Pacific. It also has a shipyard site on the American River which will be equipped for the handling of dredger and boat work. The entire plant will be driven by electric power, and the products will be mining cars, mining machinery, centrifugal pumps, dredger machinery, power transmission appliances, roll grinding and corrugating, and in addition the company will do general foundry and machine work. No new machinery will be needed, as the present equipment is ample for the new plant.

Janney, Steinmetz & Co.'s Business

Janney, Steinmetz & Co., Fourth and Market streets, Philadelphia, Pa., manufacturers of pressed and seamless drawn steel specialties, contemplate putting in some large presses in the early part of 1912, particularly in view of the fact that they have received some important contracts for high pressure air tanks for automobile self-starting devices. They are also increasing their line of cooking utensils of the larger capacities, such as big soup stock pots of 20 to 25 gallons capacity and large seamless steel cruller pots and have added a new line of French grease pans, including some large sizes not heretofore made. The demand for seamless steel baker bowls is increasing, as to a large degree they are supplanting the use of the old style wooden bowls. They further state that nearly all motor boat owners who are having high class crafts built for delivery next year are specifying their seamless steel, leakless, tested gasoline tanks to replace the old style riveted sheet-iron tanks which have been the cause of so much danger from leakage, with consequent fires and explosions and, in many instances, loss of life. They further report that their business has been good for the past year and they are booked ahead for the next four months. Prospects are very encouraging for both domestic and export business.

The Indiana State Federation of Labor will bring suit to prevent a continuance of the contract which the Indiana Mfg. Company has with the State Reformatory at Jeffersonville, Ind., to use convict labor in its foundry. The contract was made five years ago after the passage of an act by the State Legislature prohibiting such employment of convict labor but before the act became effective. The five years is about to expire, but the contract has a clause in it giving the company the right to extend it five years. The State Federation will attack the contract on the ground that, being made between the time of the passage of the act and its taking effect, it was contrary to the will of the Legislature. The foundry contract is the only one remaining of several of the kind which were in existence when the law became effective.

Flywheels for Motor-Driven Rolling Mills

An outline of the procedure to be taken in selecting flywheels for motor-driven rolling mills was contributed by Edward J. Cheney recently to the General Electric Review. While illustrating his thesis with a few examples of the relation of flywheel effect, speed and electric resistance loss, he emphasized that no definite conclusions can be reached without investigating each specific problem. Some of the points made, however, are of general practical application, as the following notes will show:

Rolling mills are all of comparatively low speed. Even when motors are geared or connected by rope drive, the motor speed is usually comparatively low; and where a speed reduction is employed, it is better, mechanically, to put the flywheel on the mill shaft, in order that the driving system may be relieved of the loads and shocks which are taken by the flywheel, and the wheel should not be located on the motor shaft where it is feasible to avoid it.

On account of the low motor speed and the good regulation necessary, flywheels may run into prohibitive sizes and it will be impossible to put on as large a flywheel as might otherwise be desired. In practice one must usually be content with a flywheel which will materially reduce the short, high peaks, and which will be of service only on the long peaks by causing the load to go on and off the motor gradually, and so ease off the sudden jolts, which would otherwise be demanded from the power supply.

In order properly to study the problem it is necessary to make up diagrams of the total load by combining the individual portions. Different flywheels may be assumed for the various mills and the resulting power curves combined in the various possible relations. In doing this the diversity factor and the laws of chance must be properly considered in addition to all the facts peculiar to the particular installation. If there are a large number of motors it is reasonably certain that all of them will never be working on their worst cycles simultaneously and with coincident peaks; but if there are only three or four motors it is equally certain that they will, at times, arrange themselves in the worst possible relation. It can be depended upon, however, that not more than two or three will ever remain in such relation with each other for any length of time.

Having plotted out our load curves for various conditions, we shall find that there are three factors influenced by the flywheel sizes which affect the supply system. These are, 1, peak load; 2, suddenness of fluctuations; 3, power-factor.

Where power is purchased from an outside company it is only necessary to determine how the changes which we can make in the above factors will affect the power bill. But ordinarily current is generated by the company which uses it, and a detailed study is required to find how the cost of producing power will vary. The relative importance of each factor depends upon the general type of the system and particularly upon the generating equipment.

High peaks will generally mean an increase in first cost and a decrease in generator efficiency, but these effects will be more marked with gas engine generators than with turbines, since the latter have higher overload capacity and flatter efficiency curves. The effect of peaks upon station capacity depends also upon their frequency. When a certain maximum load can only occur at rare intervals, due to a particularly unfortunate combination of loads, much less margin may reasonably be allowed than if this maximum is expected to recur frequently.

Violent fluctuations disturb voltage and frequency and may affect parallel operation. In general, a higher peak can be carried when the load comes on gradually. In some cases it may be absolutely necessary to equip the motors with flywheels in order to obtain satisfactory operation of the generators, and in others the use of flywheels may permit of considerable reduction in generating capacity, due solely to their steadying effect. Here again turbine generators have the advantage over gas engines, due to their better governing characteristics on swinging loads.

To sum up the matter, we can say that first the load curves on each individual motor must be determined, particularly the most irregular loads. It must then be determined what alterations can be made in these curves by flywheels of practical size, and how these alterations will affect cost and operating characteristics. The effect of different flywheels must be considered on the individual motors and then on the supply system. A careful study made upon these lines will indicate whether it is advisable to install flywheels or not and, if so, what their sizes should be. It should be needless to say that good judgment and a complete practical knowledge of the working conditions are essential aids to the mathematical treatment.

The Western Wheel Barrow & Mfg. Company's New Plant

The Western Wheel Barrow & Mfg. Company, Kansas City, Mo., states that contracts for the new plant which it is building at Fort Smith, Ark., have been let and the buildings are now being erected. The company recently acquired all of the assets of the Fort Smith Stove Works at South Fort Smith, Ark., and will use the foundry for the manufacture of castings for the wheel barrow and truck business and continue to operate the stove foundry for the manufacture of the former owner's complete line of ranges, cooking and heating stoves.

The buildings which the company is erecting there are composite—of brick, concrete and partly fire proof construction and partly mill construction—and will consist of a two story office, a machine shop about 50 x 150 ft., main wood working building 100 x 150 ft., bending rooms, dry kilns, paint shop, and a large warehouse, together with boiler and engine room. It is installing a 350 hp. engine and will remove the machinery it has in Kansas City to that point. It is making additions in the way of machinery so that its equipment will be complete for the manufacture of not only the line it has been making, but steel trays and tubular wheelbarrows. It is manufacturing its own wheels and for 1912 is offering a new wheel which will be called the Cooper patent self oiling wheel.

A branch will be maintained at Kansas City, Mo., but the main office will be located at South Fort Smith, Ark. The plant will be located on the Arkansas Central and the Frisco tracks. The company has been organized under the laws of the State of Arkansas with a paid up capital of $200,000. T. G. Dade is president and J. P. Ellison is secretary and treasurer.

The Machine Tool Builders' Programme

The programme of the annual convention of the National Machine Tool Builders' Association, at the Hotel Astor, New York City, Tuesday and Wednesday, October 10 and 11, will include the following addresses:

"Task Work as a Basis for Proper Management," Henry L. Gantt, consulting engineer, Singer Building, New York.

"Shop Hygiene as a Factor in Efficiency," Winthrop Talbot, M.D., Cleveland, Ohio.

"Standardization of Machine Tools with Relation to the Interchangeability of Fixtures and Cutting Tools," L. P. Alford, editor American Machinist.

The convention will hear fewer papers than formerly. A feature will be made of discussion, including suggestions as to the field of the association's work. Members will be invited to introduce various subjects under that head.

On Tuesday evening the members will be the guests of Machinery at a supper and entertainment at the Hotel Astor, and on Wednesday evening of the American Machinist at a theater party at the Hippodrome.

Chinese Exports of Pig Iron and Iron Ore.—A statement from the commercial attaché to the British Legation in Pekin says that the Tayeh iron mines, the only ones in China now systematically worked, produced 713,000 tons of ore in 1909. They are near the Yangtse River, 70 miles below Hankow, where the ore is largely used in the manufacture of pig iron and steel at the Hanyang Iron Works. The Chinese company which owns these works and the Tayeh mines (also the Pinghsiang collieries) exported 129,000 tons of ore and 63,500 tons of pig iron to Japan and the United States last year.

An Iron and Steel Trust in Italy

A correspondent of the London Economist says: A compact between various companies for the constitution of an iron and steel trust has been finally signed, and Italy will have, thanks to the strenuous exertions of the Director-General of the Bank of Italy, a trust similar in extent and scope to the great iron combinations of Germany and the United States. The six companies which already produce most of the iron and steel manufactured in Italy—the Siderurgica Savona, Altiforni ed Accioierie Piombino, Ferriere Italiane, Elba, Ilva, Metallurgica di Sestri—have agreed to confer upon the Ilva Company (which has a newly erected establishment at Pozznoli, in the Gulf of Naples), the authority necessary to regulate all their respective establishments from July 1, 1911, to December 31, 1922. From the net income of the trust will be deducted the following assignations: Two million lire to the Elba Company in consideration of its mineral rights; two millions to the Ilva Company, and one million to the Piombino for the same reason; and, for other reasons, 800,000 lire to the Savona Company and 180,000 lire to the Piombino.

The reason put forward for the constitution of the trust was the better regulation of the industry, the specialization of production and distribution, the saving of wasteful transports, etc. The real reasons, however, appear to be, first, that all the companies were in a perilous financial situation, were overloaded with stock and short of ready money. A sum of 96 million lire has been calculated as necessary to insure the life of the industry; 39½ million lire were furnished by discount at 5.90 per cent. of long-dated bills, scaled up to December 31, 1912; 16 million lire were loaned at a minimum interest of 6 per cent. net by banks on current account to be amortized by December 31, 1919; 23 millions will be obtained by debenture issues, to be issued shortly, and seven after a delay. The remaining 17½ million lire will be supplied to the Ilva Company.

To insure the position of the banks furnishing the money (all the high finance has to be mustered on the occasion, from the Bank of Italy to Banca Commerciale, Credito Italiano, Banco di Roma, Banco Zaccaria Pisa, and some of the great savings banks), it was stipulated that the net income shall be pledged to pay the interest on the debt and the bills yearly repayable; and that only after settling these prior charges shall be distributed to share capital a dividend not greater than 24 lire per share (12 per cent.) for the Savona Company, 20 lire (8 per cent.) for the Elba Company, 12 lire (6 per cent.) for the Ferriere Italiane, 18 lire (9 per cent.) for the Ilva Company.

This has been called the moralizing of the industry; but the Italian Bourses have readily observed that the maximum dividends were fixed at a very much higher level than the last dividends, notwithstanding that the financial arrangements, as above described, resembled strongly a moratorium conceded from the creditors' bankers to debtors in distress.

Another reason which prompted the constitution of the trust was the greater possibility of joint action against the workpeople, which are of a peculiarly riotous nature, particularly in the Elba Isle. A lockout was soon proclaimed in the Elba and Piombino mines and works. But as the trust is unpopular the wisdom of the action is doubtful. Third, and last, the prices will have to be raised against the consumers. A press campaign is already on foot with the object of inducing the government to raise the already enormous duties on unmanufactured and semi-manufactured iron and steel. The pretext is the dumping exercised by German syndicates, and the occasion of the raising of duties will be the renovation of the commercial treaties with the European central powers in 1916.

The Pennsylvania Engineering Works, New Castle, Pa., builder of steel plate work, blast furnaces, slag cars, etc. is receiving the material required in the construction of the two new blast furnaces for which it recently secured a contract from the Minnesota Steel Company, Duluth, Minn., and this work will now be started. It has also received a contract from the Dominion Steel Corporation, Sydney, Nova Scotia, for a hydraulic accumulator.

Washburn Motor-Driven Drill

Recently the Washburn shops of the Worcester Polytechnic Institute, Worcester, Mass., placed on the market a new type of motor-driven sensitive drill press. The special features of this new tool are the way in which the motor is attached and the ease with which the tension of the belt can be varied. As will be noticed from the accompanying engraving the motor is attached to the rear side of the column, thus balancing the tables at the front and giving a symmetrical effect to the whole machine. A base plate bolted to the column supports the motor. The armature of the motor has a cone pulley mounted upon it and the drive is by belt from this pulley to a corresponding one on the driving shaft, and then by quarter-turn belt to the spindle, the tensions on these belts being controlled automatically by locked belt tighteners. The drive shaft bearing slides in and out on a bracket which has a vertical movement through a gibbed slide on the column, both movements being controlled by hand wheels operating a rack and pinion movement.

A New Motor-Driven Drill Built by the Washburn Shops of the Worcester Polytechnic Institute, Worcester, Mass.

An automatic locking device is attached to and forms a part of the pinion shaft. This device is so arranged that the bracket and the slide are locked in every position and the only labor necessary to change the belt tension is to turn the hand wheel. This device corresponds to the arrangement used by the builder on its drawing stands and drafting tables and is very simple. It is thus possible to give the belt the exact tension required for the best results and it is so easily operated that when a job is completed the tension of the belt can be released instantly, thus increasing its life.

Two types of drill press known as the 14 and 13 in. tools are built. The larger is provided with both a square and a round table, the former having an apron of ample proportions and swinging about the column. The round table can be adjusted vertically on the column or removed entirely, and either a cup or a crotch center placed in the supporting bracket. The square table can also be tipped to any desired angle. The 13-in. drill is constructed in the same way, but has the square table only. This is supported by a slide which runs the entire length of the column, the head bracket being on the same slide. Both machines will accommodate drills having a maximum diameter of 9/16 in., and three spindle speeds, namely, 644, 1130 and 1976 r. p. m. are available. While the tools can be driven by any type of induction or direct current motor if the speed range mentioned is desired the regular cone pulley arrangement and a motor operating at a speed of 1130 r. p. m. should be used. The weight of the drill press equipped with a constant speed motor is 430 lb.

Ring-oiling bearings are provided for both the motor and the drive shafts. An independent bearing which takes the entire pull of the belt supports the spindle pulley so that the spindle runs absolutely free. This bearing is flooded with oil at all times, a retaining ring being cast concentric with the bearings and forming a basin which holds the lubricant and prevents it from spattering.

Officials of the United Shoe Machine Company have been indicted for violating the Sherman anti-trust law.

New Finds of Lake Iron Ores

Recent Developments on the Mesaba and the Older Ranges

MARQUETTE, MICH., September 23, 1911.—Important among recent discoveries of iron ore on Lake Superior have been the results attained by the Newport Mining Company, controlled by Ferdinand Schlesinger, of Milwaukee. This company has been most successful in its exploratory work several miles east of its great Newport mine at Ironwood, Gogebic range, having discovered an immense deposit of high-grade ore that it is now preparing to develop. The property bids fair to equal in proportions the Newport itself. Diamond drills were operated for some time under discouraging conditions, but the management persisted. It will be a substantial addition to the wealth of the district. The Newport mine, itself, is one of the most valuable on the Gogebic, and has been so appraised by the Michigan State Tax Commission's mining engineer. For many years it was only a small producer, but finally it entered a new zone that proved to be of great size and richness. The Newport has now been valued for taxation purposes at $13,000,000.

A strike of much significance and apparently of considerable value has been made at the Silverman property east of Ely, Vermilion range. The tract is near the Section Thirty-nine, now in the second year of its productive career, and is owned in fee by the Lazarus Silverman estate. Exploratory work has been in progress a comparatively short time. Two diamond drills are in commission in Section 25,63-12, and each of these has encountered a body of high-grade ore that appears of large proportions. The deposit is only a little more than 100 ft. beneath the surface. The Silverman property is in the hands of Chicago parties who hold it under an option. Between it and the Section 39 the Section Thirty Development Company is at work. Ore in this latter property was encountered by a drill some time ago, and is now being opened by means of a shaft which already is bottomed in the deposit at a depth of 100 feet. The Silverman strike is only 150 ft. west of the west line of the Section Thirty Development Company's tract and apparently is not alone the same body found in the latter, but is an extension of that which the St. Clair interests are mining in the eastern portion of Section 30. The Section Thirty Development Company's property is expected to go onto the shipping list next spring.

The belief that important ore deposits exist in the vicinity of Grand Rapids, western Mesaba range, has been further strengthened as a result of recent exploratory work. Not long ago ore was encountered in a well being driven by the village. Many feet of mineral were cut. Now a similar strike has been made in a well originally sunk by a creamery association, but which has been bored to greater depth by a party of business men. In time the field will be given systematic and thorough exploration.

Still another new strike is one made by the Iron River Ore Company in the Iron River district of the Menominee range. Two diamond drills are in operation and one of these has encountered a deposit at a depth of 190 ft. It is expected that ore will be found in the second hole also. Little is yet definitely known concerning the extent of the deposit, but the outlook is at least considered promising.

A work that will be watched with interest on the Menominee is an exploratory campaign that the United States Steel Corporation is instituting in Felch Township of Dickinson County. A considerable tract owned in fee be the Michigan Land & Iron Company, National Pole Company, Ford River Lumber Company and J. M. Longyear, of Brookline, Mass., is to be drilled. The lands are in the Sturgeon River district. Included in the area is the old Deerhunt property, which at one time promised to develop a mine, but which, like all of the territory concerned, never was adequately tested. No deep drilling was ever done in the area, all past exploratory operations being confined to shallow shaft work and trenching.

The Breitung interests of Marquette have diamond drills at work in the vicinity of their Baron mine at Humboldt, Marquette range. The principal point of attack is several hundred feet east of where Richard A. Parker sunk a shaft—famous in the old days because it followed a 4-in. vein of ore for a distance vertically of several hundred feet—and then quit the work in disgust. The location of the drill is in line with the iron-bearing formation of the vicinity. The Breitung interests have been fortunate in their exploratory work, particularly in the Negaunee district, and have become one of the most important mining concerns of the region.

The Catherine Mining Company, in which the Graham Nut & Bolt Company of Pittsburgh is interested, has made a promising discovery west of Michigamme, Marquette range. A new run of ore, north of the old in this field, has been encountered, and while its extent has not yet been determined the find looks as if it would be of much importance. What this Michigamme district needs is a few mines producing ore of Bessemer grade, and it is within the range of possibility that these will be found. The product so far mined has been a limonite of low grade and selling at a low figure. Of the few producers in the field only the Cleveland-Cliffs Iron Company's Imperial property is now in commission. And this mine, notwithstanding the trade depression, is being provided with new surface buildings.

The Hanna Acquisition of a Maas Property

Brief mention was recently made of the fact that through a lease procured from the North Range Mineral Lands Company, controlled by George J. Maas, of Negaunee, Mich., and associates, the M. A, Hanna interests of Cleveland have added an important deposit of iron ore to their Marquette Range holdings. The property concerned consists of 200 acres adjoining the American Mine on the west. It has been explored extensively with diamond drills, and is known to possess great mineral value. Some account of it has already been given in *The Iron Age*. The lease runs to the American-Boston Mining Company. This corporation is a Hanna subsidiary concern, operator of the American Mine, and for the time being both properties will be wrought as one. In addition to the lease there has been executed between the same interests an option covering 160 acres still further west in the same section. It is believed that this latter tract contains a large ore body also. The 200-acre tract just leased to the American-Boston Mining Company was explored by Mr. Maas and his associates for more than three years. A large number of diamond drill holes were put down; one of these, bottomed at 3200 ft., is the deepest ever bored in America, and what is described as an "exceptionally large" deposit of ore was proved up. The deposit was followed to within 300 ft. of the American Mine. The initial development work will be prosecuted from drifts extended from the American property. The American-Boston Company is at present producing at the rate of 200,000 to 300,000 tons a year, with more than 300 men employed. With the drifts extended into the ground newly leased 500 to 600 men will be on the payroll and within five years, it is figured, the company's annual production will exceed half a million tons.

A number of prominent upper Michigan men have recently organized the Forty-Six-Thirty Mineral Lands Company, with its head office at Negaunee. It has acquired more than 1400 acres in Sections 6, 18, 20 and 30, 46-30, directly west of Republic, and on the same formation as the Cambria Steel Company's Republic Mine, Marquette Range. This formation is styled by geologists "the Republic trough." Except for three sections owned in fee by the Michigan Iron & Land Company and now being explored by the United States Steel Corporation intervene, the holdings of the newly organized concern extend for three miles along the trough. Sufficient work has already been done to disclose the presence of Bessemer ore, but its extent can be determined only by systematic exploration. The company will not develop mines on its own account, but will option and lease to operators making mining their business. The president is J. C. Kirkpatrick, Escanaba; vice-president, Abram Mathews, Marquette; secretary and treasurer, Joseph H. Winter, Negaunee. The directors include Edwin L. Thompson, of Detroit, and A. F. Mayer, of Chicago.

The rail mill of Guest, Keen & Nettlefolds, Ltd., at Dowlais, Wales, was closed down last week, acording to a cablegram, by a strike. The advances asked are reported to range from 15 to 27 shillings a week.

Gaco Specialties

Details of Two New Products

The Pittsburgh Gage & Supply Company, Pittsburgh, Pa., has recently brought out two new specialties. These are designed to be used in combination as shown in Fig. 1 and are the Gaco self-closing safety water gauge, details of which are given in Fig. 3, and the Gaco take-down gauge cock, illustrated separately in Fig. 2. The special advantages claimed for the gauge cock are strength, safety, longer life and lessened cost, while the special features of the water gauge are a substantial and simple type of construction, economy in operation, positive action and the accurate indication of the correct water level at all times.

The gauge cock which is shown at the right of Fig. 1, and in detail in Fig. 2, cannot, it is claimed, be twisted out of shape or broken off, while clogging and corrosion are prevented by the use of large ports. This gauge cock is one that it is pointed out can be taken down under a full head of pressure and repaired in a few minutes by replacing a protected disk gasket which is all that is ever required in making repairs. The end shank is never removed, but remains in the boiler while the repairs are being made, and the self-closing inner seat prevents steam or water from escaping. The seat A, Fig. 2, is removable and is of the double type, so that when taking the cock down the inner seat closes, keeping the steam and the water in the boiler while repairing gaskets. This feature, together with the cap-protected, non-grinding disk, are said to insure long life. The spring B and the stuffing box are so arranged as to keep the seat closed positively, the packing in place, and prevent leakage in the other steam. An adjustable lever, C, enables the attendant to operate the gauge at any desired angle from the floor.

The mechanism of the water gauge illustrated in Fig. 3 is very simple, and its construction is said to embody all the safety features necessary for protecting employees and safeguarding property. The side bar operates so as to throw the check upward, thus allowing the reamer to pass into the water column or the boiler for cleaning after the front stem has been removed. The port, which is sufficiently large to permit the seat to be removed, is of uniform size throughout the entire gauge, a feature that prevents clogging or corrosion. The disk is suspended from above and swings freely, thus making it practically impossible for scale or sediment to become lodged upon it, as would be the case if the hinge were placed at the bottom. When using the reamer the disk is raised out of its path by the side bar. The valve seat can be readily removed without damage by unscrewing, the large opening enabling tools to be used.

After connections are made to the water column or the boiler and the gauge glass is in place, the chain is attached as shown in Fig. 3. The wheel D is turned to the left until the valve stem E is opened wide. The chain attached to the small end of the side lever F is then pulled down, which opens the clapper disk G and permits the glass to fill. When the gauge glass has become filled the chain fastened to the small end of the side lever should be pulled down as far as it will go, leaving the arrow end down as shown. When it is desired to blow the gauge glass down the chain attached to the small end of the side lever is pulled down and held, thus holding the clapper disk open. The pet cock or drain pipe valve is then opened, allowing the steam and the water to pass freely from the gauge glass. After the pet cock or drain pipe valve is closed the chain attached to the arrow end of the side lever should be pulled down. This brings the clapper disk into the operating position and the arrow ends of the side lever should be kept down as shown in Fig. 3 at all times except when starting and blowing down.

Two sizes of water gauge and gauge cock are made, having diameters of ½ and ¾ in. respectively. The water gauges can be furnished with plain, polished or nickel-plated bodies, while the gauge cock mountings are either polished or nickel plated.

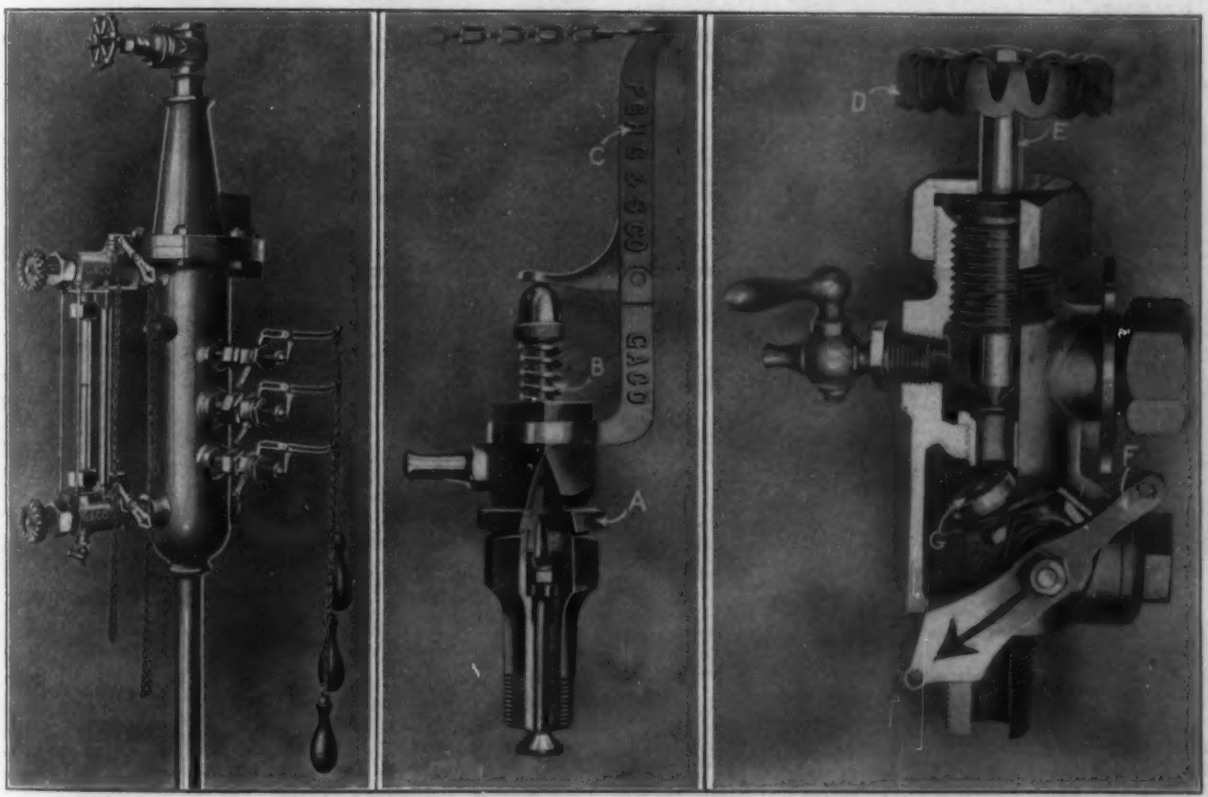


Fig. 1.—The Water Gauge and the Gauge Cock. Fig. 2.—Details of the Take Down Gauge Cock. Fig. 3—Details of the Self-Closing Water Gauge.

Two New Specialties Made by the Pittsburgh Gage & Supply Company, Pittsburgh, Pa.

The new 5-story Times Building in New Bedford, Mass., is constructed with fireproof and sound-proof material—metal lumber, metal lath, metal ceilings, etc., the contract for which was let to the Berger Mfg. Company, Canton, Ohio. The metal work in the building includes joists, rafters, studs, lath, window frames, sashes, door frames, base boards, wainscoting, ballusters, ceilings and stairways. It was the pioneer of its kind in New Bedford and since its construction others in that city have followed with metal construction as the chief characteristic.

Special Reading Cranes

Two 10-ton hand-power overhead traveling cranes having a span of 24 ft. 10 in., have been recently installed in the testing room of the United States Bureau of Standards, Washington, D. C., by the Reading Crane & Hoist Works, Reading, Pa. These cranes will be used to handle I beams and other heavy material which is to be tested in the $150,000 machine now being installed. One of the special features of these cranes is a very fine control of the movement which was made necessary on account of the delicacy and accuracy required in handling these sections. Fig. 1 shows one of the cranes, while Fig. 2 is a view of the room in which the two cranes were installed, showing them in position.

The hoist had to be built to give different speeds in lifting loads weighing three, five, eight and ten tons each, and as the material tested was of irregular shape and size, and must be turned frequently in the testing machine, it was found necessary to depart from the usual method of racking the trolley on the crane bridge and use a lead screw throughout the entire length, these two features resulting in the design of a special crane and hoist. The variation of the lifting speed was accomplished by using one of the builder's multiple-gear combined hoists and trolleys with interchangeable chains for the different capacities. The gearing for the hoists was all cut from solid steel blanks and runs in an oil bath contained in a dust-proof casing. Both ratchet and friction brakes form a part of the equipment of the hoists, the former taking care of the load while it is being lifted and the latter regulating the speed at which it descends and being capable of a fine adjustment.

The lead screw which is used to control the movement of the trolley on the crane bridge is securely fastened in brackets at each end of the crane. An arm which extends from the side of the trolley carries a brass nut of special design that is not inserted in a sprocket or hand chain wheel. This brass nut is so designed that the turning of the nut by the hand chain wheel operated by a pendant chain propels the trolley along the tracks on the top of the crane. This arm also carries the hand chain wheel for operating the crane bridge and serves as a support for the bridge shaft.

Box construction is used for the trucks, which are built up of steel plates and channels with heavy reinforcement at the axle bearing points. The truck wheels have chilled and ground treads and run on roller bearings in bronze cages. All of the gears are cut from solid blanks and the axles are hollow bored to permit the lubricant to be forced into the centers of the roller bearings.

Although these cranes are intended to be used independently of each other, if the load to be lifted is too much for one to handle they can be used in multiple. In a recent test of this character a piece weighing 23 tons was lifted by the two cranes.

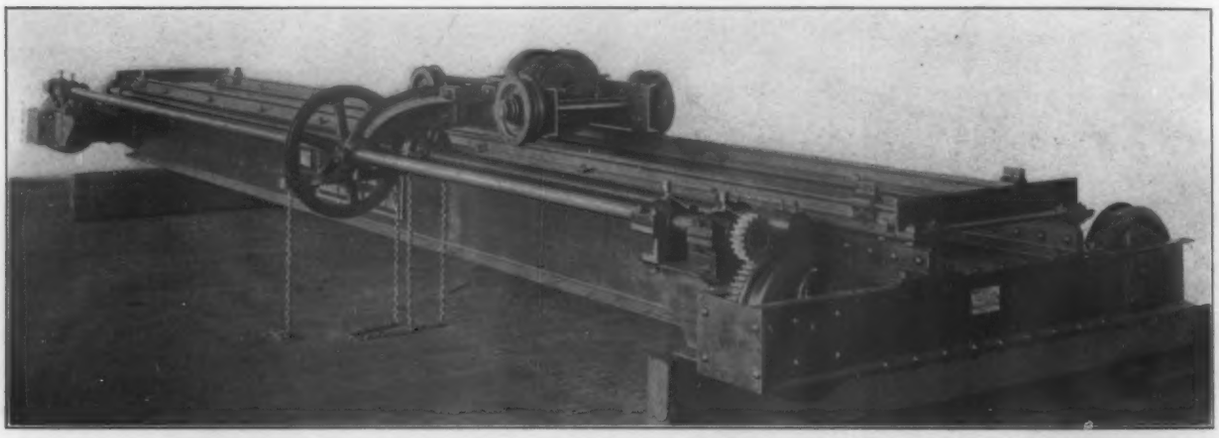


Fig. 1.—One of the Two Cranes Built for the Bureau of Standards by the Reading Crane & Hoist Works, Reading, Pa.

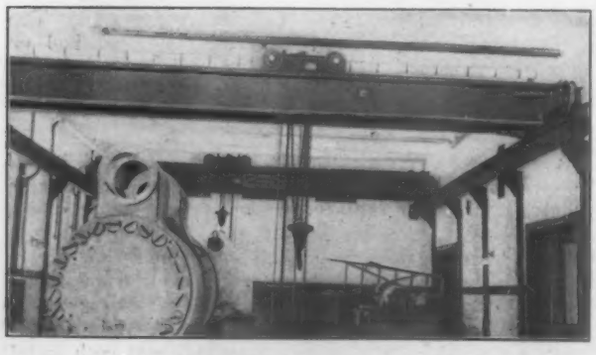


Fig. 2.—View Showing the Cranes Installed.

The Winona Technical Institute.—The suit which is to settle the future of the Technical Institute at Indianapolis will be heard October 16 at Danville, Ind., by change of venue from Indianapolis. Some of the donors to the fund raised by the city to purchase the Technical Institute grounds from the government are suing to have the property sold because the institute is in the hands of a receiver. If this litigation is settled satisfactorily, either in court or out of it, the property, now valued at over $1,000,000, will go to the school city of Indianapolis, by authorization of an act of the Legislature passed last winter, the act also providing for taxation for the support of the institute. The International Stewards' Association is awaiting a settlement of the trouble before starting to build a training school for stewards on the grounds to cost $200,000. The title to the Technical Institute property rests in a board of five trustees. The tax levy of 3 cents on the $100 for the operation of the school will not be available until next year, and the receiver is continuing the departments until that time by means of the sale of receiver's certificates, authorized by the court.

The Journal of Industrial Safety for August-September, issued by the Industrial Safety Association, 29 West Thirty-ninth street, New York, presents as its leading article a description of the movement on the lines of the Chicago & Northwestern Railroad to secure greater attention to safety provisions through the organization of a Safety Committee. An illustration is given of a method of safe-guarding motor-driven lathes. Mine fires is a topic which receives attention. The safeguarding of women workers in Germany is the subject of an illustrated article. A safeguarded sectional switchboard is described, which is so built that a section can be moved out of its place for the purpose of making adjustments, the pulling out of the frame disconnecting the switches so that the workman is safeguarded as long as he keeps the section in front of the rest of the cabinet. A method of safeguarding a small crosscut saw is also illustrated.

A Diesel motor of 2000 hp. installed in the electric generating station of Saint-Chamond was described recently in Le Génie Civil. It was built by Sulzer Frères, Winterthur, and is believed to be the largest Diesel engine yet constructed. The oil, received in wagon tanks, is stored in two large reinforced-concrete reservoirs provided with a vitreous lining.

United States Bureau of Mines Demonstrations

At the Arsenal grounds, Fortieth and Butler streets, Pittsburgh, Pa., beginning at 9 a. m. October 30, and closing at 12 m., a demonstration will be given of the work of the United States Bureau of Mines, with an exhibit of detonation of permissible and other explosives, in the steel lined gallery, filled with dust and gas. It will include exhibits and tests of mine safety lamps; of electric sparks in the presence of an inflammable mixture of air and gas; of training in rescue work with oxygen helmets; of investigations and tests of explosives; views of smokeless combustion of coal; briquetting of coal and lignite, etc.

In the afternoon there will be an actual explosion at the experimental mine of the bureau at Wallace Station, near Bruceton, Pa. This mine has been opened and equipped by the bureau with instruments for recording pressures, speed of travel of detonation wave, with various equipment for the making of actual mine explosions due to gas and dust and their observation and study; also of conducting tests of coal-cutting machines, gasoline motor, electric motor and other mine locomotives, and apparatus under working conditions within a mine.

At Forbes Field, Pittsburgh, on the morning of October 31, a demonstration will be given under the joint auspices of the American Red Cross, Pittsburgh Coal Operators' Association, and the United Mine Workers of America, but under the management of the Bureau of Mines. A parade of miners will be made under the auspices of the United Mine Workers of America. Other features of the programme are as follows:

At 9 a. m. an exhibit of skill in first aid to the injured by teams of five miners from various coal operations in the United States.

At 11 a. m. a demonstration by the Bureau of Mines in steel-lined mine gallery 200 ft. long, of a permissible shot, followed by an explosion of black powder detonated in the presence of coal dust, with a resulting explosion of coal dust ignited by the nonpermissible explosive, followed by a demonstration of rescue work. Men equipped with oxygen helmets will enter the gallery stair still filled with smoke and poisonous gases, will bring out injured men and give them artificial respiration and first aid. There will also be a demonstration in dangerous practices within gaseous or dusty mines.

At 12 m. President Taft will deliver souvenir prizes to the participants. Short addresses will be made by the President, Governor J. K. Tener of Pennsylvania, Secretary Walter L. Fisher of the Department of the Interior and others.

At 1 p. m. the President will proceed to the river front to review the marine parade in honor of the centenary of opening navigation on the Ohio River.

A New Feature of the Gandy Belt

The Gandy Belting Company, Baltimore, Md., sole manufacturer of the Gandy belt in the United States, has adopted a novel as well as an entirely original idea for distinguishing the Gandy belt from the other stitched cotton duck belts. Hereafter one edge of the Gandy belting will be painted green, while the rest of the belt will remain red as before, and it will continue to bear the brand "The Gandy Belt" and the trademark, a coil of belt and a bale of cotton laid across it, printed on the belt at intervals throughout the entire length of the roll, the same as has been the rule heretofore. The company explains that this step is made necessary because some unscrupulous competitors have endeavored to imitate its belt in appearance, color and texture. As the imitation belts are usually of an inferior quality of material and workmanship, they have failed to give the same degree of satisfaction as is experienced by the Gandy belt users.

The foundation of the Gandy belt is a very heavy cotton duck, woven in the duck mills of the Gandy Company. The sewing machines on which the belts are stitched are built in its own machine shop, and have features possessed by no other sewing machine, in that they stitch with an imbedded stitch, making the surface of the belt smooth and holding the plies solidly together. The belt is then treated by a secret process, which renders it water, heat and steam proof. Every Gandy belt is thoroughly stretched and seasoned before leaving the factory. It is uniform in width, runs straight and true, and will not slip or harden. The company fills all orders on the day received, as it carries in stock at Baltimore more than 1200 rolls of roll belting in all widths from 1 in. 4-ply to 30 in. 10-ply. In addition to this it carries in stock more than 4,000 Gandy thresher belts in every recognized thresher length and width.

The Slatington Mill Again in Operation

The Slatington Rolling Mills, incorporated July 6 under the laws of Pennsylvania, successor to the Slatington Rolling Mill Company, Slatington, Pa., started up its plant September 11. Many alterations and improvements have been made by the new owner, a large amount of money having been expended in placing the plant in thoroughly modern condition. The yearly capacity of the mill is 7500 tons of merchant bar iron. It is equipped with two coal heating furnaces, six single puddling furnaces, one busheling furnace, one rotary squeezer and three trains of rolls. The mill will manufacture rounds, squares, flats, special boiler and bridge rivet iron, small even-leg angles, round edge tire iron, half rounds, ovals, half ovals, bevels, reinforcing bars, etc. Special attention will be given to strictly high grade bar iron under the following brands: Slatington, Slatington D.R., Slatington S.B.; Slatington Special, and Slatington Norway. Edwin German is president and Walter H. Andrews is secretary and treasurer. Esau Prestwood is superintendent.

The electric power developed at Niagara Falls is placed at 275,000 hp., or about 5.5 per cent. of the available power of the cataract, by A. J. Jones, in a paper on the transforming stations of the Niagara electrochemical and electrometallurgical industries, read before the American Electrochemical Society, which held its general meeting in Toronto, September 21 to 23. From the seven hydroelectric stations, he states that 128,000 hp. is used for electrochemical purposes, 46 per cent. of the total amount and 87 per cent. of the amount used at the Falls. For railroad service 56,000 hp. is used; for lighting, 36,000 hp.; for various industrial purposes, 55,000 hp.

A new bi-monthly illustrated magazine entitled Vocational Education is being started this month by the Manual Arts Press, Peoria, Ill., the subscription price of which is $1.50 per year. It has been established to meet a demand for the latest information concerning the results of vocational school experiments. It will contain a series of illustrated articles dealing with different types of such schools and especially of institutions supported at public expense. Another feature will be articles on methods of teaching certain courses of instruction that have been found helpful in meeting vocational demands. The list of members of the editorial staff and advisory board comprises educators of prominence connected with technical schools throughout the country.

The Corey Land Company of the new town of Corey, near Birmingham, Ala., where the American Steel & Wire Company has been building a large plant in the past year, recently sold to the Tennessee Land Company, a holding company for the Tennessee Coal, Iron & Railroad Company 106 town lots, the consideration being $101,850. The Tennessee Land Company has let a contract to the Realty Construction Company for 31 houses to be built in Corey and the latter company has a contract from the Corey Land Company for the building of 15 houses. Most of these 46 houses are nearing completion.

The Smooth-On Mfg. Company, 572-574 Communipaw avenue, Jersey City, N. J., publishes a note from the De Lamar Copper Refining Company, Chrome, N. J., relating to the service rendered by corrugated Smooth-On gaskets supplied to that company in May, 1906. These gaskets numbered about 614. This summer, after the passage of five years, the De Lamar Company was asked about the results obtained with the use of these gaskets, and the gratifying reply was received that the steam lines have remained tight, the gaskets having given no trouble whatever. The Smooth-On Mfg. Company has issued a circular giving the facts in this case.

The Machinery Markets

A New York firm is getting bids on about $100,000 worth of machinery for export to South America and the general export demand continues excellent. Manufacturers of motor trucks are buying in New York. The Chicago trade is bidding on a large list of machinery for the International Harvester Company and the railroads are buying in small lots. A better demand has developed in Cleveland where there are two small lists out, each calling for $3,000 worth of machinery. Power transmission machinery is in good demand in Detroit and inquiries have increased. The volume of inquiries is also better in Cincinnati, where local buying has improved. Purchasers are showing more interest in New England, and inquiries for machine tools are on the increase. Texas dealers are waiting for renewed buying from Mexico, following the presidential election in October. Business is generally quiet in the South, the principal demand being for electrical equipment. Reports from the Pacific coast indicate that the past four weeks there have been the dullest this year.

New York

NEW YORK, September 27, 1911.

There is a better volume of new inquiries in the machinery trade and some good orders have been placed. The most important list before the trade in this vicinity has been issued by Fox Brothers & Co., 126 Lafayette street, New York, for equipment for railroad shops in South America. The company is buying fully $100,000 worth of machinery, and its list includes a large amount of machine tools. It is understood that orders for most of this material will be placed within a few days. The Pennsylvania Railroad is asking for bids on a few machine tools, but otherwise the railroads are doing nothing of consequence in the buying line. There is renewed demand for equipment for automobile plants. The Only Motor Car Company, 1919 Broadway, New York, placed orders during the week for about $30,000 worth of equipment, and it is understood that the company has more purchases to make. There are some inquiries in this market from the D. K. Snyder Sons Company, Portsmouth, Va. This company makes motor trucks. There is also a request for machinery bids from the B. F. Board Motor Truck Company, Alexandria, Va., which desires especially to obtain quotations on lathes and drill presses. The company is also interested in other machine-tool equipment. Several New York houses have received inquiries from the Frick Company, Waynesboro, Pa., which manufactures traction engines and agricultural equipment. This company is making a large addition to its plant, and from all accounts it will purchase about $25,000 worth of machinery. New York machinery men are also expecting some business from the Lehigh Coal & Navigation Company for its plant at Lansford, Pa. Another good prospect is the Lebanon Iron & Steel Company, Lebanon, Pa., which is looking into the matter of purchasing equipment for an extensive addition it now has under way. There seems to be a lull in the demand for heavy machine-tool equipment and for automatics, but the call for metal-working machinery for handling light stock is very good. Metal presses, small punches and drills of the lighter sizes are being sold principally in lots of from one to five machines. There is a good deal of competition for business in sight and the attitude of buyers seems to indicate that prices quoted them are varied as prospective purchasers show a disposition to bargain in filling their wants. The export demand continues good, but export agents are somewhat worried about the political unrest in Europe.

Naval engineers are advocating extensive improvements to the Brooklyn Navy Yard, and a movement is on foot among them to influence the Navy Department in that direction. Naval Engineer F. R. Harris and Naval Constructor W. G. Groesback have submitted a report to the department, said to be a consensus of opinion of a number of naval officers, which recommends that about $14,300,000 be spent in making the navy yard one of the biggest of its kind in the world. The report suggests enlarging the dry docks, modernizing the shops and adding to the mechanical equipment.

The International Automobile League Tire & Rubber Company, Buffalo, N. Y., now located at 72 Pine street, has secured a site at Northland avenue, Chelsea Place and the New York Central Railroad Belt Line, and is having plans prepared for an extensive plant which it will erect for the manufacture of pneumatic tires and inner tubes for automobiles. The company has a capital stock of $1,000,000. A. C. Bidwell is president.

The Board of Water Commissioners, Tarrytown, N. Y., is receiving bids for about 11,000 ft. of 10-in. cast-iron pipe and some additional quantity of smaller sizes with valves, specials and hydrants.

The Victor Milling Company has been incorporated at Victor, Ontario County, N. Y., with a capital stock of $50,000, and will erect a mill for the manufacture of flour, feed, etc. The incorporators are W. H. Draper, J. Fairles and J. J. Child, of Troy, N. Y.

The Martin Pulp & Paper Company has been incorporated at Norfolk, St. Lawrence County, and will engage in the manufacture of pulp, paper, etc., with a capital stock of $50,000. The incorporators are O. E. Martin, M. J. Martin and H. W. Martin, of Norwood, N. J.

The Rotary Pump Transmission Company, 103 Park avenue, New York, has been incorporated with $200,000 capital stock to manufacture iron pumps and transmission systems. The incorporators are Charles R. Hoffman, Copeland Townsend, George A. Burkhard, all of New York. No manufacturing plans have as yet been made.

The Uehling Instrument Company, Passaic, N. J., contemplates increasing its manufacturing equipment considerably, although not proposing to undertake any new building construction. It is bringing out several new recording instruments and making important improvements on those which have been on the market for some time.

Kraeuter & Co., Inc., 571 to 585 Eighteenth avenue, Newark, N. J., manufacturers of mechanics' tools, are about to erect a four-story, reinforced-concrete factory. The contract for this building will be signed shortly.

The Sloan & Chace Mfg. Company, Sixth avenue and North Thirteenth street, Newark, N. J., is contemplating an addition to its plant, including manufacturing equipment. The company, which manufactures precision machinery, reports its business as having been quite good for the whole of the past two years and states that it is now better than ever before in its 39 years' experience.

The Patten & Stafford Company, Canastota, N. Y., manufacturer of a line of farm implements and related products, is retiring from business, owing to the late fire which destroyed its plant.

Joseph A. Morrow, manufacturer of tools, dies and special machinery, Albion, N. Y., is contemplating enlarging his plant by the erection of a three-story building, 75 x 200 ft. Business with this company has been extraordinarily good for the past five months.

New England

BOSTON, MASS., September 26, 1911.

An increase in inquiries for machine tools is noted, including heavy tools, but on the whole actual buying has not improved. In some lines of manufacture business is very good. Some of the wire mills are quite busy, the demand for many specialties keeping up.

The tool steel people have been disappointed in promised business from the car builders and manufacturers of other classes of railroad equipment, advices from their representatives on the road indicating that little is in sight from these sources. But in spite of the unfavorable conditions in the stock market the week seems to have developed a slightly greater optimism.

The G. H. Bushnell Press Company, Thompsonville, Conn., has sold its cottonseed oil machinery business to the American Machine & Mfg. Company, Greenville, S. C., the transaction including equipment as well as patterns and stock on hand. The removal

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to Greenville will be made in the near future. This business was established by G. H. Bushnell & Co. 25 years ago. The Bushnell company will devote much attention to the development and manufacture of a three-wheel automobile for light, quick delivery, which will soon be ready for the market. The company is not yet ready to take on new tools, as it has a reasonable equipment, but will probably require some special machinery later on. The sale to the American Machine & Mfg. Company is confined to the cotton seed oil mill business, the company proposing to continue the manufacture of its general line of presses for the present.

The Lamson Consolidated Store Fixture Company, Lowell, Mass., manufacturer of carriers for service in and between buildings, will erect an additional building, 50 x 120 ft., four stories, of reinforced concrete throughout and fireproof in all particulars. A small amount of equipment will be purchased, but the company states that no decision has been reached as to what will be required. The additional space was made necessary by the large growth of the business. It will greatly facilitate the handling of materials, patterns, etc.

The New Milford Cold Rolled Steel Company, New Milford, Conn., has been organized to manufacture cold rolled strip steel, and will make a specialty of the finer grades to meet the demand for an even gauge and extra bright surface for the drawing and plating trade. A plant is being prepared at New Milford. Orders for present requirements in the way of machinery have been placed, but the company expects to be in the market for more equipment in the near future. The factory will be prepared to make shipments about November 1. Charles de L. Ensign, 311 State street, Bridgeport, Conn., is the president, Robert G. Ashman, vice-president, and Charles A. Bottomly secretary and treasurer.

The Norton Grinding Company, Worcester, Mass., manufacturer of grinding machinery, is occupying the new drafting room and the engineering quarters in the new brick building, which is the head house of the large addition to the works. The brick structure is 40 x 70 ft., three stories, while the main body of the addition will be 84 x 265 ft., one story with balconies. At present the space will be used for erecting and storage, and no new machinery will be installed. The two occupied units of the works are greatly crowded, owing to the rapid growth of the industry.

The Norton Company, Worcester, Mass., manufacturer of grinding wheels, contemplates several additions to its present buildings, which will require some additional equipment.

The Eastern Blaugas Company, 195 Middle street, Portland, Me., will erect works in that city for the manufacture of gas for lighting and heating purposes, the fuel being stored in steel tanks for use where no gas plant is available as a source of supply. The parent corporation, the Blaugas Company of America, already controls works at Montreal, Canada, and on Long Island, New York. The Portland plant will consist of three buildings. Much of the equipment has been contracted for abroad.

The Lorraine Mfg. Company, Pawtucket, R. I., textile manufacturer, will erect a machine shop 63 x 150 ft., three stories, according to a published announcement in that city.

The Morgan Silver Plate Company, Winsted, Conn., will build a plating shop 27 x 33 ft., two stories.

A foundry will be erected at Bridgeport, Conn., from plans drawn by Beckwith & Johnson, architects of that city, the name of the owner being withheld. The building will be located on State street, and will be 40 x 80 ft., one story, with steel truss roof. It will have a machine shop as well as a foundry room.

The business of the American Pressed Steel & Machine Company, 352 Atlantic avenue, Boston, manufacturer of pressed steel products and special machinery, has been incorporated as the Nevelson Machine Company, with a capital stock of $15,000. Julius Nevelson remains at the head of the business, the other incorporators being Robert M. Clark and Isadore Niditch.

A tentative announcement, lacking details, is that the Mt. Croyden and Mt. Kearsarge valleys in New Hampshire are to be converted into a chain of reservoirs, creating one of the most extensive water powers in the country, the purpose being to distribute electric power to New Hampshire and Massachusetts industries.

The Aerial Construction Company, Hartford, Conn., has been incorporated by a number of well known citizens of that city to manufacture a commercial airship, in which are combined the dirigible and the aeroplane. F. W. Dart is the president, F. W. Stickle vice-president, F. C. Billings treasurer, Franklin Wells secretary, and Joseph K. Kopacka managing director. The company's engineer is John Twardus, well known in Germany, who has made a detailed study of aeronautics in this country and abroad. An office has been established at 212 Asylum street.

The Scovill Mfg. Company, Waterbury, Conn., manufacturer of brass and brass goods, proposes to increase its capital stock to $5,000,000, by issuing 9,386 shares at $100, which will be offered to stockholders at par in the ratio of their holdings. The question will be submitted to the stockholders at a special meeting called for September 29.

Projected increases in general manufacturing industry include the following: J. & J. Cash Company, South Norwalk, Conn., textiles weave shed 36 x 125 ft., one story, and a building 32 x 50 ft.; Webster Paper Box Company, Webster, Mass., building 26 x 92 ft., two stories, to replace factory recently destroyed by fire; Fisk Rubber Company, Chicopee Falls, Mass., factory building 36 x 66 ft., two stories, and a cement house.

The American Tap & Die Company, Greenfield, Mass., maker of screw cutting tools, has recently acquired the plant of E. S. Hulbert & Co., Inc., at Bernardston, Mass., and will make some alterations with a view to manufacturing part of its product there.

Philadelphia

PHILADELPHIA, PA., September 26, 1911.

While there is a little more business in sight, some of which will develop into pretty fair purchases, as measured by the recent standards of buying, there has been little change in the immediate market situation. Several moderate lists for both metal and woodworking machinery are expected to develop in the near future, but in the majority of the cases purchasers have not fully decided on their general requirements, although orders for some tools, principally those of a special character, have already been placed. In instances some little quiet buying has been under way, not sufficient, however, to make any apparent change in market conditions, manufacturers and merchants reporting the same irregular demand that has been noted for many weeks. General inquiry still continues light and competition for business offered is keen. New business coming from the railroads is light; a few scattered orders have been placed against recent inquiries, but purchases as well as inquiries are unimportant. Engine builders are figuring on considerable work, although immediate orders have been light. The second-hand machinery market continues dull, scattered general sales representing the usual run of business. Machine tool and general machinery manufacturers report conditions as practically unchanged, in instances, however, builders of special equipment have taken on more work and have enough orders on hand to keep them comfortably engaged for some time ahead.

F. A. Havens & Co., contractors, have been awarded the contract to erect the new machine shop to be built for the Harlan & Hollingsworth Corporation, Wilmington, Del. The building will be of brick and steel construction, about 100 x 150 ft. Working plans are now being completed. Orders for some of the equipment for the new shop have, it is said, already been placed.

The United States Asbestos Company, Manheim, Pa., manufacturer of asbestos packing and rings, for high pressure service, is erecting a number of new buildings for manufacturing purposes. When completed the capacity of the plant will be doubled.

George S. Throp, Media, Pa., has let a contract for the erection of hollow tile and plaster addition 20 x 35 ft., two stories, to be used as an addition to his wheelwrighting department.

The George Oldham & Son Company, Frankford, Philadelphia, manufacturer of pneumatic tools and appliances, reports business conditions as being fairly good. The outlook for further business is encouraging, more particularly for certain classes of its special equipment.

Smith, Drum & Co., manufacturers of dyeing and finishing machinery, are taking bids for an addition to their machine shop. The building will be 70 x 100 ft., two stories, and will be used particularly as an extension to their woodworking and light machinery department. While the machinery requirements for the new addition have not yet been determined upon, consider-

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able in the way of wood-working equipment will be purchased.

The Swartz Wheel Company, Worth and Margaret streets, Frankford, Philadelphia, is building a two-story factory addition, 58 x 95 ft., which will be used as an extension to its dry rooms and warehouse. An elevator will be installed in the new addition.

The A. Buch & Son's Company, Elizabethtown, Pa., is increasing the capacity of its wood-working and planing department 50 per cent. The necessary machinery has already been purchased.

Bids have been taken for a one-story power house and coal pocket to be erected for the American Dredging Company, Camden, N. J. The power house will be one story, 55 x 78 ft.

Deinelt & Eisenhardt, Inc., manufacturers of special machinery, are quite busy. Orders have been taken recently for two large oilcloth printing machines, one for delivery to Portland, Maine, the other for shipment to the West. Considerable business in special paper bag making machinery has also been booked. The demand for power hammers has also been good and a number, particularly those of the smaller types, have recently been shipped. This concern has been gradually adding to its machinery requirements, which are now pretty fully covered and is operating its plant at full capacity.

Considerable is heard from time to time of proposed improvements to be made to the Broad street station of the Pennsylvania Railroad and the electrification of its suburban trains. Tentative plans have been drawn and have been considered by officials of the company, but the work is of such magnitude, embracing also terminal facilities for both the freight and passenger service, that nothing definite is available or has been decided upon at this time.

Chicago

CHICAGO, ILL., September 26, 1911.

Selling effort among machinery dealers during the past week has been directed for the most part toward the closing of inquiries carried over from the week previous. In addition to business pending and mentioned in our report of a week ago, none of which is as yet closed, the International Harvester Company is about to buy a considerable quantity of machines for the addition to its Tractor Works plant. A number of the railroads are in the market for one and two tools for roundhouse and shop equipment, but floor sales from the various dealers' stocks have been less active.

The Maxant Engineering & Mfg. Company, Chicago, organized to conduct an engineering and manufacturing business in mechanical and electrical products, has been incorporated by Basil Maxant, Frank Maxant and William B. Johnson with a capital stock of $100,000.

The Acorn Brass Mfg. Company has moved its works and principal office from Chicago to Aurora, Ill., where it will occupy the buildings vacated by the Richards-Wilcox Mfg. Company.

The Lake Shore & Michigan Southern Railway Company has taken out a building permit at Chicago covering the erection of a one-story roundhouse, to cost approximately $124,000.

The estate of George M. Pullman, through Frank O. Lowden, trustee, Chicago, has purchased a site at Pullman, Ill., for the erection of a mechanical training school, for which provision was made in the will of the late car manufacturer. The equipment of this school will include a practical and extensive mechanical equipment.

The La Salle County Electric Railway Company has been incorporated with a capital stock of $5,000, to build an electric railroad in La Salle County, Ill. The principal offices will be in Chicago, and following is a list of the directors: George H. Dodge, 1131 East Sixty-fourth street, Chicago; O. D. Weaver, Jr., 4425 North Winchester avenue, Chicago; Edward Horsman, 4633 Kenmore avenue, Chicago; Boyd C. Weaver, 4425 North Winchester avenue; Fred S. Abraham, 1937 Morse avenue, Chicago.

The electric light plant at Prairie City, Ill., was seriously damaged by fire.

The Rockford Drop Forge Company, Rockford, Ill., has broken ground for its new factory, the building for which will be 100 x 160 ft.

The Richards Hardware & Specialty Company, Aurora, Ill., has been incorporated with a capital stock of $100,000 by W. S. Cumming, Henry M. Hodson and William J. Pringle, all of Chicago. The new company, it is understood, will provide for the enlargement of the Richards Standard Company, Aurora.

The Dexter Mfg. Co., Fairfield, Iowa, has begun work on a new factory building in that city, 60 x 124 ft., three stories.

The Frost Mfg. Company, Kenosha, Wis., has sold to the Chicago Brass Company, of that city, the land and buildings it now occupies. The transfer, it is announced, will anticipate the building of a new plant for the Frost Mfg. Company and an extension of the present capacity of the Chicago Brass Company.

The McGowan Water, Light & Power Company, Milton Junction, Wis., has been incorporated with a capital stock of $30,000 by E. C. McGowan, William A. Dodd, Jennie M. McGowan and Ray E. McGowan.

The Wonches Mfg. Company, Deerfield, Wis., has been incorporated with a capital stock of $30,000 by S. M. Hanson, J. N. Brown and H. B. Fargo.

C. F. Hankwitz, Merrill, Wis., is negotiating for the purchase of a site preparatory to erecting a plant for the manufacture of broom and shovel handles. Machinery, the purchase of which is contemplated, includes a cut-off saw, one bolter, equalizer, automatic rip saw, tool lathe and a chucking and boring machine, together with power equipment.

The Plymouth Foundry & Machine Company, Plymouth, Wis., has been organized by R. W. Robertson, W. N. Holling and L. A. Becker with a capital stock of $30,000.

The Lyle Corrugated Culvert Company will erect a new one-story factory on Twenty-seventh avenue, Minneapolis, Minn., at a cost of $8,000.

The city of Creston, Ia., has voted the issuance of $10,000 in bonds for the installation of a water works plant.

Cleveland

CLEVELAND, OHIO, September 26, 1911.

The demand for machine tools shows a little more activity. Dealers are doing a somewhat better volume of business in single tools and inquiry is a little better. Two lists have come from manufacturers who are planning the enlargement of their existing plants. One is for 8 tools and the other for about 12 tools. Each lot will amount to about $3,000. The demand for second-hand machinery is also a little more active. The outlook for small orders for equipment for new plants has improved as a number of small plants are being planned in this territory to engage in metal working lines. The general machinery market continues quiet. Makers of handling machinery of various kinds are getting a fair volume of small orders and are figuring on considerable other small work, but there is a scarcity of inquiry for handling equipment for large plants. Makers of automobile parts are quite busy. In other manufacturing lines conditions remain about stationary.

To secure new industries for Cleveland and to extend the trade in the city's present products the industrial development committee of the Cleveland Chamber of Commerce, of which D. T. Croxton, president of the Cleveland Furnace Company, is chairman, has formulated a plan to establish a buyers' bureau to be maintained in some of the rooms of the Chamber, in which all of the products of the city can be shown in photographs, and catalogues of manufacturers can be kept on file. The matter has been placed in a buyers' bureau committee, of which F. F. Prentiss, formerly president of the Chamber is chairman.

The Board of Education, Cleveland, is in the market for complete foundry equipment for the West Technical High School, specifications for which are being prepared. Bids will be received October 16. Contracts for $11,000 worth of machine tools for the new school have been awarded. Bids for about one-half of the machinery requirements, however, were rejected and new bids will be received about November 1 on a new list which includes 18 14-in. lathes, two motor driven 14-in. lathes, 4 shapers, three milling machines and an automatic screw machine.

The Peerless Gear Tester Mfg. Company, Cleveland, has been incorporated with a capital stock of $50,000 by Worthington Hoyt, 623 Schofield Building, R. L. Ford, A. W. Kilbourne and others.

The Director of Public Service, Cleveland, will receive bids October 9 for an asphalt tandem steam roller and a portable asphalt mixing plant.

The Buckeye Twist Drill Company, Alliance, Ohio,

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has been incorporated with a capital stock of $150,000 by E. D. Rogers, George F. Glass, H. C. Koeher, D. D. Hurlburt and O. F. Transue.

The Ashland Wrench Company, Ashland, Ohio, has been incorporated with a capital stock of $15,000 by John Gabrill, Samuel Miller and others to manufacture a new type of wrench The company has under consideration a site for a plant. Toledo and Ashland men are interested in the company. The wrench is at present made by W. E. Golden, Fremont, Ohio.

The Ashtabula Red Spring & Swing Company, Ashtabula, Ohio, has been incorporated with a capital stock of $10,000 by George A. Sternburg and others.

The Trolley Bread Machinery Company, Cleveland, has been incorporated with a capital stock of $20,000 by William Robertson, S. R. Fraser and others for the manufacture of bread-making machinery.

F. E. Pomerene and C. B. Hunt, receivers of the Spellacy-Raiff Enameling Company, Coshocton, Ohio, have practically completed a deal for the sale of the plant to a new company in which Chicago men are interested, which will be incorporated with a capital stock of $50,000. The manufacture of enameled novelties is planned.

It is announced from Toledo, Ohio, that A. C. Berry, representing Pittsburgh capitalists, has closed a deal for the purchase of 27 acres in Toledo to be used as a site for a large plant for the manufacture of automobile parts. It is stated that plans are being prepared for three buildings and that $200,000 will be spent in the erection of a plant.

The Portage Rubber Company, Barberton, Ohio, will purchase considerable new equipment, mostly tire making machinery. It is also stated that the company will install a pumping station and sprinkling system.

Considerable new machinery was destroyed in a $150,000 fire that on September 14 burned the plant of the Woodville Lime & Cement Company, Woodville, Ohio. The plant will probably be rebuilt at once.

The Pioneer Motor Car Company, Marietta, Ohio, has been incorporated with a capital stock of $18,000. The company will build a three-story garage, 58 x 190 ft. with a machine and repair shop on the upper floors. The incorporators are T. B. Bosworth, A. J. Watson and others.

The Electric Cleanser Company, Canton, Ohio, is planning the erection of a new plant.

The plant of the McCalister-Byrne Construction Company, Girard, Ohio, boiler maker, has been sold to Pittsburgh men. It is announced that the new owners will enlarge the plant. James MacGregor will remain as manager.

The city of Cleveland will vote November 7 on the question of issuing $2,000,000 in bonds to build a new municipal lighting, heating and power plant.

Cincinnati

CINCINNATI, OHIO, September 26, 1911.

Some good business has lately been received by local machine-tool builders from Australia. Nearer export fields are not being overlooked, and orders from this particular trade are coming in at a fairly satisfactory rate. Many local manufacturing firms do not anticipate any great revival in domestic business until after the election next year, and are making strenuous efforts to obtain export orders. The fall season, however, is opening up encouragingly; there is an increasing number of inquiries and a spurt of activity is anticipated, to last throughout the last quarter of the year and probably through the forepart of next year.

Much interest is manifested locally in the coming annual convention of the National Machine Tool Builders' Association, to be held in New York next month. It is quite probable that the attendance from this part of the country will be much larger than usual.

J. M. Manley, secretary of the Cincinnati Branch, National Metal Trades Association, has issued a report for three months ending September 15, showing manufacturing plants in this section as operating up to 85 per cent., as compared with the quarter ending June 15, 1907. The report of June 15, 1911, placed operating activities at 87 per cent., and that for June 15, 1910, at 92 per cent. It is also worthy of note that the report of September 15, 1910, was 91 per cent., showing a loss of 6 per cent. for the corresponding period this year.

C. R. Greer, secretary of the Chamber of Commerce, Hamilton, Ohio, reports rapid progress being made on the new pressed-brick plant for the Eagle Woodenware Mfg. Company, which will soon move from its present location at Circleville, Ohio. Among other new manufacturing industries recently established at Hamilton are the Reeves Rigling Egg Tester Company, the Geore Automatic Roller Bearing Company and the Kern Machine Tool Company.

The Pothoff Construction Company, Cincinnati, has been awarded the contract for the steel work on the large grandstand to be erected in National League ball park, which was recently mentioned. A large amount of structural iron will be required for this particular job.

The Cincinnati Business Men's Club expects to move into its new home at Ninth and Race streets during the first week in October.

The University of Cincinnati opened its doors for the fall and winter term, October 25. Over 300 students were enrolled to take the co-operative course in engineering, and there were many additional applicants who cannot be admitted until the completion of the new building for the engineering department. The interior work of the building is being rushed, and it will probably be ready for occupancy within the next six weeks.

It is rumored that Frank L. Bransom, Cincinnati, formerly president of the American Fence & Iron Works, has about completed the organization of a new company to manufacture wire fencing.

The Roche Bruner Building Company, Johnston Building, Cincinnati, has been awarded the contract for a large reinforced concrete convention hall to be erected for the National Cash Register Company at Dayton, Ohio. The new structure will cost over $100,000.

The Defiance Machine Works, Defiance, Ohio, has increased its capital stock from $100,000 to $600,000.

The National Electric Welder Company, Warren, Ohio, has been incorporated with $40,000 capital stock. Fred P. McBerty and A. C. Taylor are named among the incorporators.

It is announced that the Cellular Metal Company, a new Cincinnati incorporation with $100,000 capital stock, will take over the business of the Steel Construction Company. Max S. Goldsmith, former head of the Steel Construction Company, will be president of the new company.

The large car barns of the Interurban Railway & Terminal Company at California, Ohio, were totally destroyed by fire last week. Rebuilding operations will begin at an early date. The company's headquarters are in Cincinnati.

The Piqua Hosiery Company, Piqua, Ohio, has had plans prepared by W. E. Russ, Dayton, Ohio, for a large new concrete factory.

The New Era Gas Engine Company, it is stated, will move its plant from Dayton to Portsmouth, Ohio, where it will be operated in connection with the plant of the Portsmouth Machine & Casting Company. A new building will probably be erected to accommodate the plant.

Indianapolis

INDIANAPOLIS, IND., September 26, 1911.

The Cole Motor Car Company, Indianapolis, has obtained a building permit for its new factory which is estimated to cost $45,000.

The Veneer Barrel Machine Company, Indianapolis, is a new industry incorporated with $20,000 capital stock, to manufacture machinery for making cylindical veneer packages. The directors are J. T. Horne, W. H. Burton and Lewis A. Coleman.

The Specialty Mfg. Company, Greenfield, Ind., has been incorporated, with $20,000 capital stock to manufacture vending machines, meat slicers and similar articles. The directors are Thomas C. Gettle, Anderson, Ind.; George W. Davis, Cassius M. Curry and Elmer J. Binford of Greenfield.

The City Council of Anderson, Ind., has granted a 25-year franchise for a steam-heating plant to Otis P. Crim of that city, who has bought the plant of the defunct Home Heating Company and will rebuild it.

The Indiana & Michigan Electric Company has begun the building of a concrete dam across the St. Joseph River at Elkhart, Ind., where it will erect a power house similar to the large plants at South Bend, Berrien Springs, Hen Island and other points below Elkhart.

The Stockford Reel & Novelty Company, South Bend, Ind., has been incorporated, with $20,000 capital

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stock, to manufacture fishing tackle and other articles. The directors are W. F. Stockford, F. M. Bonine, F. L. Davis, William Miller and Albert Slick.

It is not expected that the Big Four shops at Brightwood, Indianapolis, recently burned, will be rebuilt as the removal of the machinery to the Beech Grove yards had been contemplated for some time. New equipment, however, is expected to be required.

At La Porte, Ind., a contract was closed with A. M. Osborn of Chicago, for the rebuilding of the waterworks plant on the Kankakee River.

The Reed Stone Company, Bedford, Ind., is in the market for a second-hand boring mill from 10 to 12 ft. in diameter.

The J. Q. Clark Tank Company, Crawfordsville, Ind., has begun the construction of a new factory building 80 x 90 ft.

Detroit

DETROIT, MICH., September 26, 1911.

The local machine tool market continues to show a large number of inquiries and a very good average of orders. The volume of business showing, perhaps, a slight increase over last week, but no large lots of tools have been disposed of. The demand for power transmission machinery is reported as quite active. Second-hand machinery is moving freely, although most of the orders for this line are coming from out of town purchasers. Automobile factories are busy and with plans in view for the erection of several new plants, some good business will probably be secured from this source soon. Makers of railroad equipment are operating at about 50 per cent. of their capacity, but the shipbuilding companies are busy. General industrial conditions seem to be improving and the outlook for a brisk fall business is good. The building trade is stagnant, but this condition can only be temporary as a number of large projects are soon to be figured on.

The State Railroad Commission has authorized the organization of the Consolidatead Light & Power Company, with a capital stock of $100,000. The company will erect five dams along the Chippewa River and a high-tension transmission line connecting the cities to be served. The total cost of the system will be $2,000,000 and work is to be started at once. J. L. Hudson is president and C. S. Abbott general manager of the new company.

Work has been started on the new plant of the Herreshoff Motor Company on Woodward avenue. The new buildings will include a large two-story manufacturing building, a boiler house, dynamo house, machine shop and testing house.

The Colonial Electric Company, a newly organized company making electric vehicles, is contemplating the erection of a large plant. Albert H. Webb, A. D. Stansell and F. C. Willie are among those interested in the company.

The Thaime-Gill Company, manufacturer of steam and hot-water filters, has changed its name to the Detroit Heating & Refrigerating Company and increased its capital stock from $10,000 to $15,000.

The Continental Motor Company, Detroit, has completed plans and is about to begin construction on a very large plant.

The Dongan Electric Mfg. Company has been organized with a capital stock of $10,000 to manufacture electrical and mechanical instruments. L. J. Hicks and G. J. Sscherling are the principal stockholders.

The Christie-Kline Forge Company has been incorporated with a capital stock of $3,000. Harry E. Kline and E. H. Christie are the organizers of the new company.

The Mexico Latex Company, operating a rubber factory at San Juan Bautista, Mexico, has established headquarters in Detroit. Lewis F. Newman, president of the company, states that the capacity of the factory is to be largely increased.

The National Coil Company, Lansing, Mich., having completely outgrown its present quarters, has purchased the large building formerly occupied by the Ideal Motor Company and will remodel and equip it for its own use, thereby doubling the capacity of the plant. The company manufactures a large line of coils.

The Bates & Edmonds Motor Company, Lansing, Mich., maker of gas engines, is increasing the size of its plant by the erection of an addition having a floor space of 4500 sq. ft. A new boiler house is also being constructed and the assembly room enlarged. The company reports an increase in business of 40 per cent. over last year.

The large planing mills of the Fuller & Rice Lumber Company, Grand Rapids, Mich., were destroyed by fire last week, entailing a loss of $250,000. The company manufactures sash and doors and the mills were equipped with modern wood-working machinery. It is expected that the work of rebuilding will be started in the immediate future.

The Helvetia Company, Hudson, Mich., manufacturer of condensed milk products, is making extensive improvements to its plant. Considerable new mechanical equipment will be installed, including additional refrigerating machinery and two large boilers.

The Central Welding Company has been organized at Lansing, Mich., by J. E. Rork and H. D. Weise. The new company has secured quarters and will do automobile and general machinery welding.

Fire destroyed the saw mill plant of the Central Lake Lumber Company, Central Lake, Mich., causing a loss of $20,000. The plant will be rebuilt at once and operations resumed.

Chippewa County, Mich., has begun the construction of an agricultural school to be located near Sault Ste. Marie. The mechanical equipment will include the fitting up of machine shops, a blacksmith shop and the installation of a large boiler. Address the Board of Supervisors.

The plant of the Egyptian Portland Cement Company will be sold at receiver's sale at a date to be fixed by the court. E. C. Forte is receiver of the company.

The Western Wheel Works, Sturgis, Mich., is erecting a small addition to its plant.

The Shelby Flour Mills, Shelby, Mich., has under construction an addition 25 x 50 ft. and two stories in height.

The City Council of Stanton, Mich., is calling for bids for furnishing and installing new machinery at the municipal electric light and power plant.

The Allegan Light & Power Company, Allegan, Mich., has been sold to W. A. and J. B. Foote, of Jackson, Mich. The purchasers will make extensive improvements to the plant in the near future.

The Michigan Cut Glass Company, Lansing, Mich., has plans under way for doubling the capacity of its factory.

The National Auto Truck Company, Bay City, Mich., has started work on the erection of its new buildings. The company expects to begin the manufacture of cars by January 1.

The E. C. Slocum Mfg. Company has been organized at Fenton, Mich., with a capital stock of $5,000, and will engage in the manufacture of grass seeders.

The Ithaca Industrial Company, Ithaca, Mich., has organized to manufacture and deal in machinery and various iron and steel products. The company is capitalized at $6,000.

The Mt. Clemens Sugar Company, Mt. Clemens, Mich., has expended $30,000 in improvements to its plant, mostly in mechanical equipment, including pressing, drying and slicing machinery. The presses were imported from Germany.

The West Bay City Sugar Company, Bay City, Mich., will greatly increase its capacity this Fall. This announcement means that every sugar plant in the State has either been enlarged or improved during 1911. Sugar manufacturers have been heavy purchasers of machinery this Summer.

The National Turpentine Company, with headquarters at Cleveland, which recently opened a factory at AuSable, Mich., is looking over the ground at Alpena, Mich, with the view of establishing another branch in that city.

The Advance Mfg. Company has been organized at Hastings, Mich, with a capital stock of $25,000 and will engage in the manufacture of suction cleaning machines, etc.

The National Motor Starter Company has been organized at Grand Rapids, Mich., with $10,000 capital, to manufacture ignition devices. J. W. and T. H. Goodspeed are among those interested in the new company.

A new company has been incorporated at Saginaw, Mich., under the style of the C. & C. Engineering Company. The company will manufacture and deal in gasoline motors and has a capital stock of $50,000.

The J. E. Greilick Company, Traverse City, Mich., maker of chairs and tables, has increased its capital stock from $25,000 to $50,000 and is making considerable additions to its mechanical equipment.

Warren Clizbe and O. E. Jennings, of Detroit, are

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conducting negotiations with the Board of Trade of Benton Harbor, Mich., for the location of an automobile truck plant in that city.

The Marquette Box & Lumber Company, Marquette, Mich., has plans under way for the erection of a one-story concrete addition to its plant, 100 x 150 ft.

The Twin Falls Land Company, of Dickinson County, Mich., is planning the construction of a large dam across the Menominee River and a power house to be located near Iron Mountain.

The Walsh Mfg. Company, Frederick, Mich., maker of headings, is constructing a factory building 40 x 120 ft. and a dry kiln 22 x 100 ft. Modern machinery will be installed. F. J. Fitzgerald is superintendent of the plant.

The Nelson Bros. Company, Alma, Mich., has begun work on the erection of its new $25,000 plant in that city. The company manufactures gas engines and pump jacks.

The Olds Motor Works, Lansing, Mich., has let the contract for the inaugurating of construction work on its new plant.

The Detroit Wire Spring Company, Marston court and Morrow streeet, Detroit, Mich., intends to build another plant adjacent to its present factory, with 231 ft. on Morrow street, but has not decided when to begin construction. It may not be done this fall. The company's product is exclusively used for automobile manufacturers. The past has been the largest year in the history of the company, and the sales for the past month were nearly 100 per cent. larger than for the same month a year ago.

The Nichols & Shepard Company, builder of threshing machinery, Battle Creek, Mich., contemplates the erection of a foundry as an addition to its plant. The company says that as yet it is not prepared to state what machinery may be needed for the new department.

The South

LOUISVILLE, KY., September 26, 1911.

While the general situation remains fairly quiet in machinery trade circles in this section, a good deal of business nevertheless is being done. Manufacturers and dealers are not altogether satisfied with the volume of business, but concede a marked improvement over summer conditions. There is a good demand for electrical equipment from the coal mining sections of Kentucky, and with the development of properties which have been taken over recently by operating companies still more will be sold. There is keen competition for the business that is offering.

E. C. Walker, of the E. C. Walker Mfg. Company, Louisville, who has operated a machine shop for the manufacture of gasoline engines, has announced plans for a new company which will make gasoline motor trucks exclusively. The new concern will erect a plant separate from that now being conducted, and the plans provide for the manufacture of 50 cars during the first season. The Walker plant at present is at Jackson and Lampton streets, and here the first models for the new car have been made.

The Continental Car & Equipment Company, Louisville, has completed the equipment of a section of its plant, heretofore devoted exclusively to the manufacture of contractors' dump cars, for the manufacture of electric trucks. The first models have been completed, and have a load capacity of 7,000 pounds. Other cars built to carry 5, 2, 1 and one-half tons will also be built later on. The line heretofore manufactured will be continued by the company. A. B. McKinley is general manager of the concern.

John M. Mulloy, 212 West Market street, Louisville, is organizing a company for the manufacture of an automatic weighing device to be used in the coffee trade. A small shop has been equipped for the work, but this is to be enlarged if plans now under consideration are carried out. The machine is made of aluminum chiefly.

Berton B. Bales, president of the American Automobile Mfg. Company, New Albany, Ind., has resigned, and George H. Wilson, Louisville, will succeed him. The company is just preparing to market a line of pleasure cars, and trucks are to be made a little later.

The Inland Steel Company is furnishing the reinforcing bars for the concrete framework of the Henry Watterson Hotel in Louisville. Five hundred tons of material will be used. Caldwell & Drake are the contractors.

E. D. Morton & Co., Louisville, have secured the agency for the injectors and boiler-room specialties of the Desmond-Stephen Mfg. Company, Urbana, O.

The Louisville & Nashville Railroad Company has purchased for installation in its South Louisville shops an Ingeroll-Rand air compressing outfit having a capacity of 4,000 cu. ft. per minute. This is one of the largest installations contracted for recently. The Brandeis Machinery & Supply Company, Louisville, made the sale.

The Red Chief Mfg. Company, Louisville, has incorporated with $7600 capital stock. L. E. Gaisser is president of the company and George T. Cross is secretary and treasurer. The company has a plant which has been in operation for some time, manufacturing corn shellers and feed mills, but expects to extend its line considerably and to enlarge its capacity later on.

A better demand for refrigerating machines and boilers is noted by the Henry Vogt Machine Company, Louisville. The demand is still somewhat below expectations, however.

The James Clark, Jr., Electrical Company, Louisville, reports some inquiries on large installations, but adds that the number of prospects is less than had been expected.

Scottsburg, Ky., is considering the installation of a system of waterworks, principally with reference to fire protection.

Preston Gibson, Scott Brown and Clarence Julian will erect a flour mill at Frankfort, Ky., the enterprise having been granted exemption from municipal taxation for a period of five years.

Robert Starkweather, of the Victoria Limestone Company, Bowling Green, Ky., has secured a site for the cut-stone plant which the company will build, and plans the equipment of it in the immediate future.

Chattanooga, Tenn., iron interests are prominent in the Appalachian Exposition now in progress at Knoxville, Tenn. Among the exhibitors from that city are the Chattanooga Implement & Mfg. Company, Cahil Iron Works, Chattanooga Saw Works, Chattanooga Plow Company, Chattanooga Machinery Company, Chattanooga Iron Works, Citico Furnace Company, Dixie Logging Tool Company, Frictionless Metal Company, Hercules Mfg. Company, Jones Machinery Company, Mountain City Stove & Mfg. Company, Nixon Mining Drill Company, Southern Queen Range Mfg. Company, Tennessee Stove Works, Vesta Gas Range Mfg. Company, Walsh & Weider Boiler Company and Wheland Machine Works.

The Spalding Mfg. Company, Grinnell, Ia., is reported to be contemplating the removal of its plant to Memphis, Tenn. It manufactures wagons, buggies and other farm vehicles.

D. F. White and J. D. Stoltz, Adams, Tenn., are interested in the organization of a company for the operation of an electric light plant.

Clarksville, Tenn., has disposed of $60,000 of bonds recently authorized for the reconstruction of its water plant, and is now ready to go into the purchase of equipment for the plant.

The Corinth Engine & Boiler Works, Corinth, Miss., has been put in the hands of a receiver. Application for a receivership was made by two of the stockholders. The company was organized only a few years ago. It is expected that it will be reorganized and the plant continued in operation.

The Piedmont Auto Mfg. Company has been organized with $100,000 capital stock at Fairbairn, Ga., for the purpose of manufacturing motor cars. Robert F. Butler, W. L. Moore nd W. H. Knight are the incorporators.

The Industries Light & Power Company, Alexander City, Ala., has begun the construction of a water-power electric plant for the purpose of selling light and power to Alexander City. The company has $50,000 capital stock.

The Pea River Power Company, Troy, Ala., of which Charles M. Henderson is president, is erecting a hydroelectric plant on Pea River, in Coffee county, for the purpose of serving Troy, Dothan and other Alabama cities. The cost of the plant will be in the neighborhood of $150,000.

The Tri-State Drilling & Fishing Tool Company has been organized at Huntington, W. Va., with $15,000 capital stock by H. W. Locke, W. H. Locke and Arvilla Leidecker.

The Arkadelphia, Ark., Milling Company is planning the installation of refrigerating equipment.

Canadian capital is interested in the Georgia Railway & Power Company, which has applied for a char-

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ter to engage in the traction and electric light and power business. The company proposes to have a capital stock of $27,000,000, and to construct electric lines in several sections of the State. Charles Magee, J. M. McWhinney, R. Mathison and George A. Kingston live in Toronto, Can., and Forest Adair, J. J. Spalding, Alex C. King and F. Marvin Underwood are Atlanta men. The articles of incorporation have been filed in the latter city.

Power equipment for the pumping station of its new waterworks system will be purchased in the near future by the city of Jessup, Ga.

The Lytton Mfg. Company, manufacturer of steam traps, Franklin, Va., is contemplating the reconstruction of its works and will be in the market for a few lathes, drill presses, etc. The company will not make any additions to its buildings. It has added to its line the manufacture of a new blow valve and a new pressure regulator.

The Kentucky Traction & Terminal Company, Lexington, Ky., has awarded a contract to Fred J. Kemp, Versailes, for the erection of a substation, 33 x 86 ft. This station will be equipped with modern electrical machinery, including a 300 kw. rotary.

The De Marco-Fulford Company, Atlanta, Ga., has been incorporated to manufacture the Peerless line of oil mill and fertilizer machinery. The company is special sales representative for the Sturtevant Mills Company, Boston, Mass. The officers of the company are F. L. de Marco, president; F. L. Sawyer, vice-president and J. H. Fulford, secretary-treasurer.

The Culloden Fertilizer Company has been incorporated with a capital stock of $10,000 at Culloden, Ga., to manufacture fertilizers. The company has commenced work on a building and expects to be ready for business in a short time. Col. H. E. Chambless is president of the company.

The Board of Aldermen, Lexington, Miss., will receive bids until October 18 for a system of sewers comprising about 5½ miles, also a system of waterworks comprising two flowing artesian well reservoirs, steel tank and tower, steam or gasoline pumps, boilers and about 6 miles of cast iron mains, hydrants, valves, etc. Address W. G. Kirkpatrick, engineer, Jackson, Miss.

The Hickman Coil Hoop Company, Hickman, Ky., has acquired the property and machinery formerly known as the Hickman Lumber & Planing Mill Company, East Hickman, and will convert it into a hoop mill. Some additional machinery will be required later on. A. J. Sides is president of the company.

The Metal Strip Glazing Company, Pelham, Ga., has been incorporated to manufacture galvanized steel strips for windows under the patents of T. E. Weaver. E. C. Ralls and J. M. Culpepper are the incorporators.

The Holt Engine Company, Burlington, N. C., is building a machine shop, 60 x 98 ft., which is to be modern in every detail. The company manufactures the Holt direct, compound and reversing rotary engines.

The William J. Oliver Mfg. Company, Knoxville, Tenn., manufacturer of contractors' equipment and plows, is contemplating the erection of several additions to its plant, including a malleable foundry and increased space for its plow factory.

The Carolina Metal Products Company, Wilmington, N. C., has had plans prepared for an addition to its plant, 50 x 200 ft., which will be installed with all necessary machinery. This addition is to take care of its sheet metal department, such as metal ceilings, sidings, metal shingles, metal tiles, etc.

The Lenoir Mfg. Company, Lenoir, N. C., has been incorpo ated with $50,000 capital stock. The company is planning the erection of a factory for the manufacture of building materials. The incorporators are O. P. Lutz, T. J. Lutz and M. L. Lutz. The company will be in the market for a second-hand re-saw in good condition.

The B. F. Board Motor Truck Company, Alexandria, Va., has been organized with a capital stock of $100,000. The purpose is to build auto trucks, ranging in carrying capacity from 1000 lb. to 10 tons, also sightseeing cars. B. F. Board is president; T. C. Smith, vice-president; W. E. Ban, treasurer; George S. Hinkins, scretary; E. K. Callahan, assistant secretary. In addition to the above, the board of directors is composed of R. B. Powell, W. R. Powell and J. U. Dellinger.

St. Louis

ST. LOUIS, Mo., September 25, 1911.

September has advanced sufficiently to show strong indications that the month in the machine tool market will be an improvement over August. There has been nothing exceptional in the business done, but there has been a larger aggregate of sales and there have been more inquiries, especially in the past week. Considerable business is working into shape for taking bids in the next few weeks. Dealers for the most part express a confidence in improvement during the coming month, though most of them frankly admit that they do not anticipate any extreme activity, at least not until the political situation is cleared.

Reports from a number of manufacturing plants of St. Louis are that they are making improvements with a view of preparation to increase their mechanical equipment during the coming Fall. Their specific needs have not been listed yet.

The Cotton Belt System has placed its order for steel shapes and also for considerable equipment for its new freight terminal with the Christopher & Simpson Architectural Iron & Foundry Company, St. Louis.

A new automobile company, headed by August Mattemann, planning to construct a cheap car, has placed orders for about a dozen machine tools of varied character for a plant which it is equipping in the southern end of the city.

The Christopher & Simpson Architectural Iron & Foundry Company is making extensive additions to its plant, involving an expenditure of about $100,000, chiefly for new equipment.

The William J. Lemp Brewing Company has taken out a permit for a building for a stock house seven stories, to cost $75,000, exclusive of mechanical equipment.

The Wrought Iron Range Company has let the contracts for the new buildings which it is to construct on the western edge of the city. The cost will be $179,425, exclusive of the mechanical equipment, of machinery and heating plant. The buildings are to be fireproof.

The A. P. Bohlinger Table & Piano Stool Mfg. Company suffered a loss by fire last week but will replace its mechanical equipment at once in its present location.

The new buildings for the Rolla School of Mines, at Rolla, Mo., have been ordered constructed at a cost of $65,000, exclusive of equipment.

The Aberdeen Mining Company, Joplin, Mo., has been incorporated with $80,000 capital stock by Thomas Douglas, D. M. Henson, Joseph Young and others and will install mining equipment at once.

The Jones Razor Mfg. Company, with $75,000 capital stock, has been incorporated at Kansas City, Mo., by Floyd D. Jones, T. I. Jones and Frank G. Johnson, and will equip a plant at once.

The Holland American Tailing Mill Company, with $100,000 capital stock, has been incorporated at Joplin, Mo., by A. Van Dorser, H. A. Russell and G. C. James, and will install equipment for working mine tailings in the Joplin lead and zinc district.

The Western Steel Products Company, with $100,000 capital stock, has been incorporated at Kansas City, Mo., for the manufacture of various steel devices. The incorporators are Lyle Garrison, S. E. Gutteridge and Edward C. Marqua.

The Wright City Milling Company, with $15,000 capital stock, has been incorporated at Wright City, Mo., by P. L. Simmerman, F. A. Roennigke and W. A. Gaddis.

The Gunn Pipe Line Company, of Kansas, has been authorized to use $50,000 of its $500,000 capital stock at Nevada, Mo., for the installation of gas supply equipment.

Graham's Rockford Distillery Company, Rockford, Ill., has increased its capital stock from the nominal sum of $3,500 to $150,000, preparatory to installing equipment.

The Automatic Register Company, of Delaware, is completing arrangements for the erection of a plant at East St. Louis, Ill., for the manufacture of automatic registers for railroad and electric lines.

The International Automatic Signal Company, with $1,000,000 capital stock, has been incorporated at Kansas City, Mo., by C. H. Carson, Louis B. Leach and York Burgess, for the manufacture of automatic signaling devices.

The J. W. Boyd Mining Company, with $50,000 capi-

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tal stock, has been incorporated at Sarsoxie, Mo., by J. W. Boyd, B. C. Burgess and Sam McFerren, and will install mining equipment at once.

The National Recorder Company, with $30,000 capital stock, has been incorporated by W. W. Kay, W. J. Kennedy and O. L. Niedringhaus, of St. Louis, for the manufacture of a register for the use of conductors of trains. A factory will be built at once.

The Christopher Electric Company, with $30,000 capital stock, has been organized at Christopher, Ill., by Thomas Horn, Albert E. Pike, H. M. Rea and T. D. Parkhill, for the installation of an electric lighting plant.

The Carthage Electric Company, Carthage, Ill., has increased its nominal capital stock of $5,000 to $50,000, preparatory to the installation of its electric plant.

The Kansas City Scales Company has increased its capital stock from $10,000 to $25,000 for the extension of its plant for the manufacture of scales.

The W. C. Mfg. Company, with $25,000 capital stock, has been incorporated at Kansas City, Mo., by Elton D. Wheeler, Burt T. Cubine and T. M. Douglas.

The Wagner Electric Mfg. Company, St. Louis, has formally increased its capital stock from $1,200,000 to $1,500,000 for the extension of its St. Louis plant and for equipment of its branch Canadian factory.

The Warren Steel Casting Company, St. Louis, with $120,000 capital stock, has been incorporated in St. Louis by John A. Warren, William A. Kammerer, Patrick Cunningham and Lorenz Wittmann, and will equip a plant for the manufacture of steel castings.

The Missouri Belting Company, St. Louis, has prepared plans for the erection of a factory at Grand avenue and La Salle street, to cost $75,000.

The American Furnace Company, St. Louis, has let contracts for the erection of a two-story steel construction factory building to be 73 x 135 ft., and to cost $42,000. The present location of this company is at 1911 Pine street, and the new building is to be erected on Morgan street, near Twenty-seventh street.

At Paragould, Ark., $30,000 is to be spent in improving the electric lighting plant.

At Gavette, Ark., a bond issue of $25,000 is proposed to provide a water works and electric light plant.

The Cushman Power Sprayer Company, now of Lincoln, Neb., will remove its offices and plant to St. Joseph, Mo., in the immediate future.

The Nebraska-Iowa Steel Tank Company, Omaha, Neb., has let contracts for the erection of a $12,000 factory building at Fourteenth and Grace streets, in that city.

The Street Railway Company, operating in Omaha, is taking bids covering the construction of an addition to its car shops, 24 x 140 ft.

At Chapman, Kan., it has been decided to issue bonds to the amount of $25,000 to provide for the construction of a city electric light plant.

Texas

AUSTIN, TEXAS, September 23, 1911.

The unusual rapidity at which cotton is being marketed is bringing about a great improvement in business conditions, due to the circulation of money that is derived from the crop. The industrial situation is very favorable in Texas and throughout the Southwest. Prospects are promising for an unusually large machinery trade in this territory during the fall and winter. As soon as the presidentiai elections in Mexico are over, which will be in October, it is expected that business conditions in that country will quickly improve and that many orders for mining and other machinery that are now held up pending the restoration of complete tranquility will be filled.

The Intermittent Vacuum Pre-cooling Company has been organized at San Benito with a capital stock of $60,000 for the purpose of installing a pre-cooling plant. The incorporators are C. B. Rodgers of Kingsville, S. A. Robertson of San Benito and J. H. Elliott of Houston.

The Fort Stockton Light & Ice Company which has been organized at Fort Stockton, with a capital stock of $35,000, will install an electric light plant and ice factory. The incorporators are Charles S. Schraff W. F. Zarback and James Rooney.

The City Council of Cameron has granted Hamilton Brothers of Chicago a franchise for the installation of an electric light plant and waterworks system.

The Hackberry Mill & Gin Company has been formed at Hackberry with a capital stock of $2,500 to install a grist mill and cotton gin. The incorporators are Jacob Lorfing, Eugene Christine and Charles Hughes.

The Vanderbilt Gin Company has been formed at Vanderbilt, with a capital stock of $2400. Incorporators are J. F. Grant, August Apree and C. C. Coleman.

The City Council of Houston Heights has under conisderation the granting of a franchise to the Houston Gas Company for the extension of its gas distributing system to that suburb.

The Business Men's Club is promoting the construction of a bridge to connect Mason with Goochtown.

The city of Baird has issued $3,500 of bonds for waterworks.

It is reported that Swift & Co., Chicago, Ill., will erect a large cold storage plant at Corpus Christi.

W. K. Durham, Atlanta, Ga., is at the head of the Olympia Cotton Mills, recently organized with a capital stock of $250,000 for the purpose of erecting a large cotton mill at San Antonio.

The Landrum Ginning Company has been organized at San Benito, with a capital stock of $6,000. The incorporators are J. L. Landrum, A. E. Chapman and Samuel Spears.

The City Board of Health of San Antonio has taken steps toward the installation of a garbage incinerator to cost about $25,000.

The Houston Gas Compay is installing an addition to its plant to cost $7,500 at Houston.

The Farmers' Gin Company has been formed at Lancaster, with a capital stock of $5,100. The incorporators are G. T. Brown, D. H. Moneyhan and C. T. Orr.

The Forney Waterworks Company, Forney, recently amended its charter to change its name to the Forney, Water, Light & Ice Company and to increase its capital stock from $10,000 to $20,000.

The Pecos Valley Southern Railway will soon begin the erection of shops and terminals at Pecos. It will also extend its line from Balmorhea to Alpine, about 75 miles.

The Kansas Ice Company, Newton, Kan., will install a 100-ton ice plant at Belen, N. M., at a cost of about $100,000.

The Adolphe Didier Distilling Company which was recently formed with a capital stock of $40,000, will install a distillery at Belen, N. M.

General Luis Terrazas, Chihuahua, Mexico, is constructing a large dam upon his ranch 30 miles north of that city. It will have a storage capacity of 350,000,000 cu. ft. of water, capable of irrigating over 4,000 acres of land. It will also supply energy for a hydro-electric plant which he will install. The power will probably be transmitted to Chihuahua and other towns of the State. M. C. Liquornik is the engineer in charge of the construction work.

Oliver B. Caldwell, Corpus Christi, has just installed a brass foundry in that city and contemplates the addition of an iron foundry in the near future.

Bonds of $20,000 have been voted for the construction of water work at Timpson.

The Mayor of Nocona will receive bids until October 2 for material and equipment for water works, pumps, engine, 75,000-gal. steel tank and tower, pipe, valves and hydrants. Specifications can be had from the Fountain-Shaw Engineering Company, 308 Andrews Building, Dallas, or from the mayor.

The Pacific Coast

SAN FRANCISCO, CAL., September 21, 1911.

Anticipations based on the improved demand for machine tools is June and July have been disappointed, the last four weeks having been about the dullest of the present year. Not only is inquiry for heavy equipment entirely lacking, but there is less demand for small tools than early in the season, and the demand for foundry supplies is extremely slow. About the only business in sight consists of additions to small shops in the interior. Officers at the Mare Island Navy Yard have prepared a list, including several large tools, but no definite action is expected for some time. Two automobile manufacturing concerns are being promoted in Oakland, but the outlook for business from this source is very uncertain. The dullness locally is partly attributed to the placing on the market of a large number of tools formerly used by the Risdon Iron Works.

A number of contracts for marine work are being completed, but a fair degree of activity in this line is

THE MACHINERY MARKETS

assured by a contract amounting to about $750,000, placed with the Union Iron Works by the Oceanic Steamship Company, for repairs and the installation of oil-burning equipment on two of its vessels. Local gas engine and pump manufacturers are well occupied, but in other departemnts the shops around San Francisco are doing comparatively little. Conferences are now being held between representatives of the employers and the union workmen, and there is some possibility of a restoration of the nine-hour day. This, it is felt, would afford some relief from the conditions which have hampered the local metal-working industry for the last year. The demand for most lines of machinery, however, is not especially active, though a few good orders are coming out for electric and steam power equipment.

Thomas M. Moore, who had charge of the machinery and power divisions of the St. Louis and Buffalo expositions, is in San Francisco on consultation concerning power for the Panama-Pacific Exposition.

It is reported that the American Safety Powder Corporation, recently organized with a capital stock of $5,000,000, will erect a large plant in Oakland.

Bids have been taken on a concrete mixing plant for use on the Humboldt jetties, the lowest being $1,560. Some new quarry equipment may be required by the Hammon Engineering Company, which is preparing to get out the rock for this work.

The San Francisco Board of Public Works will receive bids up to November 1 for 43 double-end closed steel motor cars, complete, with axles, wheels and motors, for the Geary street municipal railroad.

The Dunn Mfg. Company, Oxnard, Cal., is planning to install a crucible steel casting plant.

The Golden State & Miners' Iron Works has just completed a large clamshell dredge on which it has been working for several months.

Plans have been completed for additions to the water plant at Willows, Cal., including a large pump, gas engine and two electric motors.

The Guaranty Land & Investment Company is installing a large number of irrigation pumping units on its land near Corcoran, Cal.

The Salt River Valley Water Users' Association, Phoenix, Ariz., has taken bids on a 10-ton and a 15-ton traveling crane for its new power station.

The Humboldt Cooperage Company, Arcata, Cal., is installing a new lathe and shaper in its machine shop.

The California Wine Association is installing a 600-hp. electric motor in its plant at Winehaven, Cal.

The G. A. Baughan Valve Company is considering the erection of a factory at American Park, near San Diego, Cal.

The town of Tracy, Cal., will receive bids September 28 for a centrifugal fire pump with electric drive.

It is reported that the Diamond Match Company will install a wood-working plant at Los Molinos, Cal.

The San Francisco agency for the Whiting foundry equipment line has been taken by the Eccles & Smith Company.

B. J. Smith, associated with the Rix Compressed Air & Drill Company, expects the arrival of stock of the various lines of tools for which he has the agency within the next month. These lines will also be handled by the Los Angeles branch of the Rix Company.

Plans have been completed for an addition to the Parker Iron Works, San Bernardino, Cal., consisting of forge and pipe shops. New machinery will be installed in these departments.

J. D. Douglas, manager of a suburban railway line of Auckland, New Zealand, arrived in San Francisco last week to inspect American electric railroads. The motive power of his road is to be changed from steam to electricity, and orders for machinery will probably be placed in this country.

The Associated Oil Company is installing several auxiliary boilers and engines and a new pump in its refinery at Gaviota, Cal.

Eastern Canada

TORONTO, ONT., September 23, 1911.

The defeat of the Laurier Government at the polls on September 21 shows what the Canadian people thought of the reciprocity agreement. That pact being thus emphatically disallowed, all uncertainty in respect to it is at an end and trade will throw off any feeling of unsettlement that was caused by the political suspense. As has been said in previous reviews, such feeling has not been observable in any marked slowing down in business. It is believed, however, that it would have been very much more active had there been no elections impending, or had the issue been other than a commercial one. Since the voting, there has been a pronounced gain in public confidence, and there is now every prospect of a rousing trade for some months. There is a sense of security against depression from the United States. Already there are reports of negotiations, that were broken off after the announcement of the pact, will be resumed, for the erecting in Canada of branch plants of United States manufacturing works. Encouraging messages have been received from financial houses in London by brokers and bankers in this country as to an improved outlook for the movement of capital into Canada. It is stated that British capital can more easily be got for the establishing of American branch factories in Canada than for the enlarging of the parent plants. All the indications point to the maintenance of Canada s prosperity and the further expansion of Canada's trade.

The Canadian branch of the Flexible Conduit Company is nearly ready to install machinery in the factory building it has reconstructed for the purpose in Guelph, Ont. It will manufacture flexible conduits and flexible steel armored conductors for use in electrical installations.

The ratepayers of Norwich, Ont., have approved a by-law for the purchase by the municipality of the local electric company's plant, which the town would enlarge and improve.

The Goldfield's Company at Larder Lake, Ont., is putting in a plant to develop 2000 hp. at Raven Falls, and it will shortly install a 30-stamp mill at its mine.

At Wawaitin Falls in the Porcupine district, Ontario, the British-Canadian Power Company is building a plant for generating 5,300 hp on the Mattagaini River. Machinery is now being taken in for the equipmen of that plant and for the operation of drills, hoists and other apparatus used in construction.

The Hupmobile Company is about to begin the erection of a factory to employ from 75 to 100 men at Windsor, Ont.

The Independent Fire Company's new factory at Guelph is expected to be ready for operation before Christmas.

The Chicontimi Water & Electric Company, Chicontimi, Que., is building power works at a point 3 miles from that centre.

The bridge companies of Canada are now exceedingly busy on railroad bridges and large edifices.

A. W. Farnesworth, Consulting Engineer, London, England, is looking about in Canada for a suitable location upon which to build a steel plant to cost about $5,000,000.

Tenders are to be called for in a few weeks for the building of the superstructure of a bridge over Lachine Canal, 156 ft. single-leaf highway. The Strauss Bascule Bridge Company, Chicago, is preparing the designs.

Contracts for the electrical equipment for coal-shoots and for station heating and lighting at London, Ont., will be called for very soon by the Canadian Pacific Railway Company.

The Santz Marble Company, Buffalo, N. Y., is about to build sheds at Bridgeburg, Ont., and install a plant there for the sawing, planing and polishing of stone work.

The Riordan Paper Company, Montreal, is erecting an additional building.

A proposal has been made to the municipality of Lindsay, Ont., for the establishing of a malleable iron industry in the town by J. McComb of Toronto.

The ratepayers of Listwell, Ont., are shortly to vote upon a by-law to loan $25,000 to the Electrical Supply Company on condition that it locate its plant in the town.

J. C. Wilson & Co., Montreal, will build a warehouse and offices in a part of that city at some distance from the location of their present premises.

The Boeckh Bros. Company, Toronto, manufacturer of brushes and brooms, is building a large addition to its factory and warehouse.

The Diamond Flint Glass Co., Toronto and Hamilton, is building a factory in Hamilton to cost $65,000.

The new factory of the Canadian Yale & Towne, Ltd., St. Catherines, Ont., is to cost $125,000.

The Town Council of Port Stanley, Ont., is proposing to install a hydro-electric power and lighting plant to cost about $22,000.

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Western Canada

WINNIPEG, MAN., September 23, 1911.

In Western Canada the elections were a cause of more hesitation on the part of business men than in the rest of the country, the belief there apparently being that in the East there was as strong a desire for the agreement as in the West. Houses in Toronto report some recent backwardness in the placing of orders by Western buyers of machinery and plant. This was owing to a belief that the increased traffic with United States that would result from reciprocity in natural products would cause an enlarged shipping of manufactured stuff from the United States into Canada. Incidentally to the trade in natural products.

The contract for the construction of the match factory at Port Arthur has been awarded to George Otto of that city.

The Universal Motor Truck Company, Warren, Ohio, has decided to establish a branch factory at Fort William, Ont.; that is, if the agreement it has just concluded with the city's Industrial Bureau is ratified by the ratepayers. The company would erect and equip a plant to cost $350,000 and the city would take $100,000 of the company's total capital stock of $1,000,000.

The Great West Coal Company, which has been floated in Glasgow, Scotland, with a capital stock of $150,000 is about to begin operations in its field of 1118 acres about five miles from Edmonton, Alberta, on the Grand Trunk Pacific. Coal cutting machinery is being brought out from Scotland.

The Western Canada Flour Mills Company, Winnipeg, has decided to build a large mill at Vancouver at a cost of about $400,000.

French's Complex Ore Reduction Company will establish in Nelson, B. C., a plant for the treatment of zinc ores in that locality.

The Canadian Pacific Railway Company is building a great irrigation dam at Bassano, Alberta.

The town of Kelowna, B. C., is planning the installation of a sewerage system, the purchasing of a large water-works pump, and the laying of a considerable extent of watermains.

The John S. Metcalf Company, Montreal, is preparing to install machinery in the extension to the Globe Elevator Company's works at Calgary, Alberta.

Large lumber mills are being planned by the Virginia & Rainy Lake Lumber Company at Fort Frances, Ont.

The Cushing Bros. Company, Calgary, Alberta, has been incorporated with a capital stock of $500,000 to carry on business as manufacturer and dealer in lumber.

The British North America Elevator Company, Ltd., will erect an elevator at Kindersley, Sask.

A. C. Stielow, a pulp manufacturer of Milwaukee, Wis., recently visited Fernie, B. C., accompanied by several directors of the Bull River Power Company, in order to place before the City Council a proposition to establish a pulp mill at that point.

The Couteau Power Company, formed some time ago by prominent men of Okanagan, B. C., for the building of an electric railroad line through that district, has sold out to McKenzie & Mann, of the Canadian Northern Railway. It is presumed that the new owners will carry out the project mentioned.

The Atlantic Refining Company, Cleveland, Ohio, is negotiating with the city of Regina, Sask., with a view to establishing a plant there.

A syndicate of Western capitalists, among whom is Colonel Walker, of Calgary, has purchased a large tract of coal lands on the eastern side of the Red Deer River, Alberta, opposite the town of Lignite, and not far from Alix. Developments of the holdings will be commenced immediately.

An English syndicate has purchased the water rights of the Paterson-Eckert Lumber Company, at Chilliwack, B. C., and it is understood that a cement plant will be erected there to cost in the neighborhood of $500,000.

The Powell River Paper Company, whose new mill has not long been in operation, is already making plans to double its capacity by the erection of a twin mill adjoining it. The company's offices are at 739 Hastings street, Vancouver.

The British Canadian Lumber Company, Vancouver, B. C., is erecting a lumber mill at Lulu Island, at a cost of $400,000. The mill will be 72 x 292 ft., exclusive of dry kilns and box factory.

The Netos Timber Company, Limited, Vancouver, B. C., has been incorporated, with a capital stock of $50,000, to carry on business in the Province of British Columbia or elsewhere as wood, timber and lumber merchants, sawmill and shingle mill proprietors, dealers in sawn timber, wood shingles, poles etc.

The Pincher Creek Mill & Elevator Company, Pincher Creek, Alta., which has an authorized capital stock of $1,000,000, is drawing up specifications for concrete buildings, tanks and power house. The company's property is situated on a stream having a natural fall of 45 ft. The flour mill will have a capacity of 1,000 to 1,200 bbls, and the oatmeal mill 200 bbls.

The Medicine Hat Milling Company will remodel and enlarge its plant at Medicine Hat, Alberta, and will build an elevator at Irvine.

A. B. Pranca, Vancouver, B. C., is preparing plans for a saw mill for the Canadian West Lumber Company, Vancouver, at Comox, B. C., at a cost of $60,000.

A by-law will be submitted to the ratepayers of Richmond, B. C. for the raising of $50,000 for the purchase, construction and maintenance of waterworks system.

Government Purchases

WASHINGTON, D. C., September 25, 1911.

The Bureau of Supplies and Accounts, Navy Department, Washington, will open bids October 14 as follows: One 21-in. turret lathe, schedule 3946; one die-sinking machine, schedule 2966; 28 electric motors, schedule 3969.

The United States engineer office, Wheeling, W. Va., will open proposals October 12 for constructing a power house and installing one 115-hp. boiler, a steam-driven air compressor, feed water heater, pumps, etc., at dam No. 19, Ohio River.

The Bureau of Yards and Docks, Navy Department, Washington, will receive bids until September 30 for a portable air compressor and accessories for the Norfolk navy yard.

Proposals for two 15-ton locomotive jib cranes, one to be delivered at the navy yard at Norfolk and one at Mare Island, will be received by the Bureau of Yards and Docks, Navy Department, Washington, until September 30.

The Isthmian Canal Commission, Washington, circular 650, calls for a list to be opened November 20 for electric towing locomotives for the canal locks.

The Paymaster General, Navy Department, Washington, will open bids October 3 under schedule 3930, class 73, for two triple plunger electric fresh-water pumps and two electric centrifugal sanitary flushing pumps, one large circular saw and one large bevel band saw for heavy ship work.

The Paymaster General, Navy Department, Washington, will open bids October 10, under schedule 3915, class 11, for one lock-seaming machine, semi-automatic, for delivery to Mare Island, Cal.

Major F. C. Boggs, purchasing agent, Washington, D. C., will receive bids until October 9 for furnishing machinery and a hydroelectric station at Gatun, Panama.

The Bureau of Supplies and Accounts, Navy Department, Washington, opened bids September 19 as follows:

Schedule 3887, class 131, five Hendey-Norton engine lathes—Bidder 82, Frevert Machinery Company, New York, $446; 86, Fairbank Company, Washington, D. C., $387 and $603; 98, Garvin Machine Company, New York, $347.40; 118, Kemp Machinery Company, Baltimore, Md., $448.50 and $471.50; 149, D. Nast Machinery Company, Philadelphia, Pa., $365; 154, Manning, Maxwell & Moore, New York, $545; 155, Niles-Bement-Pond Company, New York, $446; 174, Prentiss Tool & Supply Company, New York, $515; 199, Springfield Machine Tool Company, Springfield, Ohio, $452 50.

Schedule 3888, class 141, motor applications to belt-driven machine tools—Bidder 65, Diehl Mfg. Company, Elizabethport, N. J., $5,795 and $5,952; 101, General Electric Company, Schenectady, N. Y., $3,133; 176, Reliance Electric & Engineering Company, Cleveland, Ohio, $7,330; 222, Westinghouse Electric & Mfg. Company, Washington, D. C., $4,779.84; 244, Hendey Machine Company, Torrington, Conn., $640, part.

The Department of Justice, Washington, received bids September 18 for furnishing air receiver, air compressor, riveting hammers and hose for use at the United States Penitentiary, Leavenworth, Kan., as follows:

George S. Githens Company, Boston, Mass., $513; Corby Supply Company, St. Louis, Mo., $499; Curtis & Co. Mfg. Company, St. Louis, Mo., $494.401; Fairbanks, Morse & Co., New York, $519.30; Union Steam Pump Company, Battle Creek, Mich., $515; Independent Pneumatic Tool Company, Chicago, Ill., $491.86; Blaisdell Mfg. Company, Bradford, Pa., $413.20; Vorhees Rubber Mfg. Company, Jersey City, N. J., $57, hose only; Ingersoll-Rand Company, New York, $353.50; Reeves & Skinner Machinery Company, St. Louis, Mo., $470; Clayton Air Compressor Works, New York, $558.

Current Metal Prices.

The following quotations are for small lots, New York. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Refined iron:
1 to 1⅞ in. round and square ... ℔ 1.70¢
1⅛ to 4 in. x ⅝ to 1 in. ... ℔ 1.70¢
1⅞ to 4 in. x ¼ to 5-1 ... ℔ 1.80¢
Rods—⅝ and 11-16 round and square. ℔ 1.80¢

Angles: Cts. ℔ lb.
3 in. x ¼ in. and larger ... 1.90¢
3 in. x 3-16 in. and ⅛ in. ... 2.30¢
1¼ to 2¾ in. x ⅛ in. ... 2.05¢
1½ to 2¾ in. x 5-16 in. and thicker ... 1.95¢
1 to 1¼ in. x 3-16 in. ... 2.05¢
1 to 1¼ x ⅛ in. ... 2.10¢
⅞ x ⅛ in. ... 2.20¢
⅝ x ⅛ in. ... 2.25¢
⅜ in. x ⅛ in. ... 3.45¢
½ x 3-32 in. ... 3.90¢

Tees:
1 in. ... 2.35¢
1¼ in. ... 2.20¢
1½ to 2½ x ¼ in. ... 2.00¢
1½ to 2½ x 3-16 in. ... 2.10¢
3 in. and larger ... 2.95¢
Beams ... 1.90¢
Channels, 3 in. and larger ... 1.90¢
Bands—1¼ to 6 x 6-16 to No. 8 ... 2.10¢
Burden's "H. B. & S." iron, base price ... 2.95¢
"Burden's Best" iron, base price ... 3.15¢
Norway bars ... 3.60¢

Merchant Steel from Store—

per ℔
Bessemer machinery ... 1.80¢
Toe calk, tire and sleigh shoe ... 2.50@3.00¢
Best cast steel, base price in small lots ... 7¢

Sheets from Store—

Black

	One pass, soft steel.	R. G. cleaned.
No. 16	℔ 2.45¢	2.75¢
Nos. 18 to 20	℔ 2.50¢	2.85¢
Nos. 22 and 24	℔ 2.55¢	2.95¢
No. 26	℔ 2.60¢	3.05¢
No. 28	℔ 2.95¢	3.30¢

Russia, Planished, &c.

Genuine Russia, according to assortment ... ℔ 12 @14½
Patent planished, W. Dewees Wood ... ℔ A, 10¢; B, 9¢ net

Galvanized

Nos. 12 and 14 ... ℔ 2.75¢
No. 24 ... ℔ 3.10¢
No. 26 ... ℔ 3.30¢
No. 28 ... ℔ 3.60¢
No 20 and lighter 36 inches wide, 25¢ higher.

Genuine Iron Sheets—

Galvanized
Nos. 22 and 24 ... ℔ 5.50¢
No. 26 ... ℔ 6.00¢
No. 28 ... ℔ 7.00¢

Corrugated Roofing—

2½ in. corrugated.	Painted.	Galvd.
No. 24 ... ℔ 100 sq. ft.	$3.75	$4.70
No. 26 ... ℔ 100 sq. ft.	2.85	3.90
No. 28 ... ℔ 100 sq. ft.	2.50	3.65

Tin Plates—

American Charcoal Plates (per box)
"A.A.A." charcoal:
IC, 14 x 20 ... $6.65
IX, 14 x 20 ... 7.90
A. charcoal:
IC, 14 x 20 ... $5.60
IX, 14 x 20 ... 5.70

American Coke Plates—Bessemer—
IC, 14 x 20 ... 107 lb. ... $4.50
IX, 14 x 20 ... 5.50

American Terne Plates—
IC, 20 x 28 with an 8 lb. coating ... $8.70
IX, 20 x 28 with an 8 lb. coating ... 10.70

Seamless Brass Tubes—

List November 13, 1908. Base price, 18¢

Brass Tubes, Iron Pipe Sizes—

List November 13, 1908. Base price, 18¢

Copper Tubes—

List November 13, 1908. Base price, 21¢

Brazed Brass Tubes—

List February 1, 1911. 19½¢ ℔

High Brass Rods—

List February 1, 1911. 14⅝¢ ℔

Roll and Sheet Brass—

List February 1, 1911. 14⅝¢ ℔

Brass Wire—

List February 1, 1911. 14⅝¢ ℔

Copper Wire—

Base price, Carload lots mill 13¾¢

Copper Sheets—

Sheet copper hot rolled, 16 oz. (quantity lots) ... ℔ 17¢
Sheet copper cold rolled, 1¢ ℔ lb advance over hot rolled.
Sheet copper polished 20 in. wide and under, 1¢ ℔ square foot.
Sheet copper polished over 20 in. wide, 2¢ ℔ square foot.
Planished copper, 1¢ ℔ square foot more than polished.

METALS—

Tin—

Straits pig ... ℔ lb 44 @45 ¢

Copper—

Lake ingot ... ℔ lb 14 @14¼¢
Electrolytic ... ℔ lb 13¾@14 ¢
Casting ... ℔ lb 13¾@14 ¢

Spelter—

Western ... ℔ lb 6¾@ 7 ¢

Zinc—

No. 9, base, casks ... ℔ lb 8½¢ Open ... ℔ lb 9¢

Lead—

American pig ... ℔ lb 5¼@5½¢
Bar ... ℔ lb 6¼@6¾¢

Solder—

½ & ½, guaranteed ... ℔ lb 26½@27¢
No. 1 ... ℔ lb 24½@25¢
Refined ... ℔ lb 23½@24¢
Prices of solder indicated by private brand vary according to composition.

Antimony—

Cookson ... ℔ lb. @10¼¢
Hallets ... @10 ¢
Other brands ... 9@ 9½¢

Bismuth—

Per lb $2.00@$2.25

Aluminum—

No. 1 aluminum (guaranteed over 99% pure), in ingots for remelting ... 21¢ and 22¢
Rods and Wire ... Base price 31¢
Sheets ... Base price 33¢

Old Metals—

Dealers' Purchasing Prices Paid in New York.

	Cents.
Copper, heavy and crucible	10.50 to 10.75
Copper, heavy and wire	10.25 to 10.50
Copper, light and bottoms	9.25 to 9.50
Brass, heavy	7.00 to 7.25
Brass, light	5.50 to 5.75
Heavy machine composition	9.00 to 9.25
Clean brass turnings	6.75 to 7.00
Composition turnings	7.50 to 7.75
Lead, heavy	3.75
Lead, tea	3.50
Zinc, scrap	4.00

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